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FISHING TACKLE

ITS MATERIALS AND MANUFACTURE

A PRACTICAL GUIDE FOR THE ANGLER & FLY-FISHER

By J. H. KEENE

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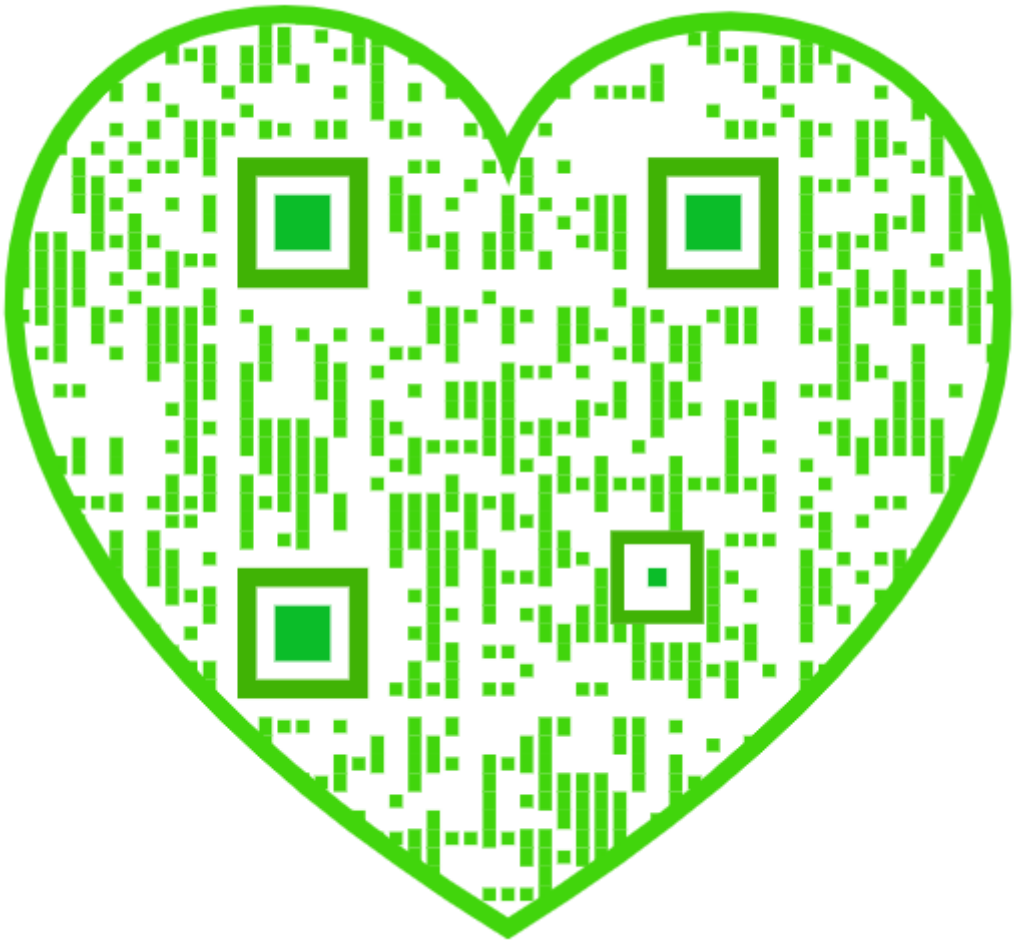

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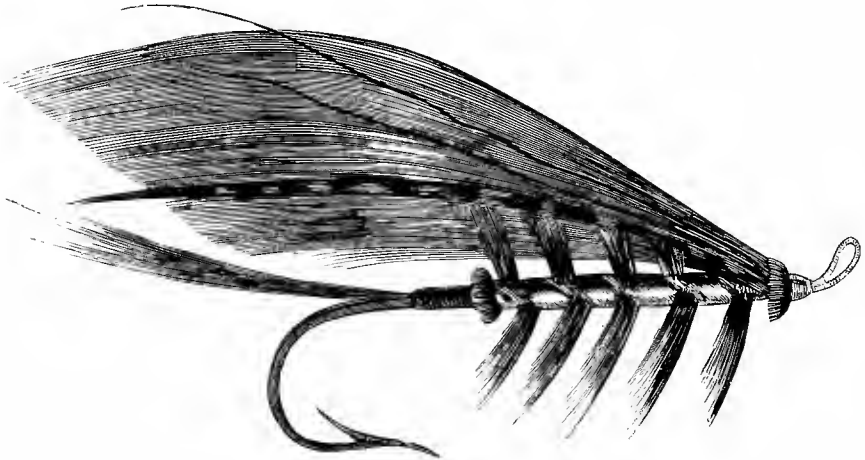

THE "SHANNON"—THE LARGEST SALMON FLY MADE. [*See page* 209.

John J. Carton

FISHING TACKLE,

ITS MATERIALS AND MANUFACTURE:

A

PRACTICAL GUIDE

TO THE

BEST MODES AND METHODS OF MAKING EVERY KIND OF APPLIANCE NECESSARY FOR TAKING FRESHWATER FISH, AND FOR THE EQUIPMENT OF THE ANGLER AND FLY-FISHER.

BY

JOHN HARRINGTON KEENE,

AUTHOR OF "THE PRACTICAL FISHERMAN," ETC.

WITH TWO HUNDRED AND FIFTY-FOUR ILLUSTRATIONS AND EXPLANATORY DIAGRAMS.

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PREFACE

OF all pursuits that are followed by men, whether for pleasure or for profit, singly or for both combined, there is none perhaps in which self-help and self-dependence are so absolutely needful as in the sport of fishing. In no craft, indeed, that can be named is it more desirable that those who take it up should be able to make and mend the various articles and appliances that are required for its prosecution.

The fisherman, it must be remembered, when angling or fly-fishing, plies his avocation in places far removed from the busy haunts of men, and for the most part alone; and if, then, he cannot help himself, there is no one to whom he can appeal for aid. An unlucky accident, forsooth, may suddenly put a premature end to a promising day's sport, if the fisherman has not with him the materials and, worse, does not possess the skill to set the damage to rights and go to work again with as little delay as possible. The unlooked-for fracture of the joint of a rod, or the loss of or injury to tackle, may compel him to take his way homewards long before he would otherwise do so, if he be unable to effect the repairs necessary to enable him to renew his attempts to transfer some of the finny tribe from pool or stream to creel or bag. Again, on his arrival at the river's bank, he may find

that the day's success will depend entirely on the use of a fly which his book does not contain, and whose prototypes are skimming over the surface of the water much to the satisfaction of the tenants of the stream, who are even leaping into air to snatch their prey. In such a case an hour occupied in making three or four flies in imitation of those which are for the time so peculiarly attractive to the fish, will be time well spent and by no means lost.

But those who would be able to make or mend at will, must gather experience and skill by practice at home in quiet hours and spare time, when nothing else has prior claim on their attention. Therefore, to enable, or at all events to assist, all who have the will to do so, to make rods and necessary tackle of all kinds for themselves, and to become acquainted with all that it is needful to know about the materials they require, and where to buy them or whence to get them, I have ventured to put forth this little volume, in which I have gathered up the experiences of many years as a maker of my own tackle and as a fisherman in various waters on both sides of the Atlantic.

October, 1886.

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FISHING TACKLE.

CHAPTER I.

HOOKS OF VARIOUS KINDS, ANCIENT AND MODERN.

FTER I had mapped out the chapters that follow, I had much doubt whether the subject was of sufficient general interest to warrant me in offering them to the publisher, though I personally had felt the want of such a work, and knew of others who had confessed the same need. In my difficulty I consulted a valued friend (one of the best anglers of the day), and here is an extract from his reply: "Why not of sufficient interest? Do you know that there are 4117 members of angling clubs in London alone, chiefly of that class yclept 'working men,' comprising artisans of all kinds? Then look at the 117 Clubs and Societies of the provinces, including those immense organisations of Sheffield! Mr. Wheeldon, in his handbook on 'Angling Clubs,' says it is computed that there were not less than 30,000 visitors last year to the waters over which the Boston Angling Association has jurisdiction, and ask yourself if it be possible to number those people who come under the category of 'amateur' and skilled fishermen, who frequent the Lea and Thames during the season." I found my-

self pondering on this, and have, in the end, arrived at a practical conclusion.

The manufacture of fishing-tackle by the amateur is an art by no means difficult of acquirement, if the operator be even as careful in following directions as he would be in connection with the most ordinary piece of carpentry; and in the event of his being an angler, the difficulties are remarkably decreased. With a constituency of many thousands who make fishing a dearly valued sport, the professional manufacturers are few, and the retailers enjoy a comparative monopoly. It is true Messrs. Allcock, of Redditch, employ over six hundred hands in actual manufacture from raw material, but then they supply half the tackle-dealers—probably this is far within the mark—of that empire on which it is our boast the sun never sets. Yet every little and big retailer terms himself a maker; and it is for country and town private residences, gorgeous and high-rented shops in busy thoroughfares, and to swell the large balance at the bankers, that each and every angler has to exorbitantly contribute, if he decide to supply all his wants for angling from the tackle shops. I say this fearlessly, because I know the original cost, the comparative easiness of making, and the ultimate prices obtained for goods often of inferior and unreliable make. Many a pound have I saved for myself by the home manufacture of tackle; and it is precisely because I desire to see others doing the like, that I offer these articles to my readers. Of course, everything cannot be made by the amateur, but a large percentage can; and to show to what perfection of manipulative deftness one can attain, I may add that the friend of mine aforesaid, two years ago, had

never made an artificial fly, and now is reputed one of the best makers in Hampshire of those quintessences of daintiness — the "Quill Gnats" and the various Duns. I also have puzzled out all I know about the subject *unaided* during the last twenty-five years of varied occupations which, however, have been rendered bright by a love of fishing and its co-ordinate pleasures.

So much by way of introduction; and I may be forgiven if I further preface the subject with a few remarks on the history of fishing tackle in the past. Hooks were certainly in use when the Book of Job was written, and Isaiah also makes unmistakable reference to these implements also. Egypt seems, also, to be a nation to which one can turn with a certainty of finding proofs that the angler existed in ages before Christianity. Bronze harpoons and fish hooks still exist to show that this was so. An Egyptian tomb, built, according to Mr. Adams, as early as the seventeenth dynasty, contains a representation of two men angling, with the hieroglyph of fishing inscribed above them. Net-casting, fishing with cormorants, or a bird resembling them, are all represented on various monuments; and it is known that fish culture was well understood by the ancient Egyptians. Theocritus (270 B.C.), and Ausonius (four centuries after Christ), both refer to angling. And, to pass to a later period of Egypt—this "China of the western world," who is there that does not remember the exquisite joke, detailed by Plutarch and dramatized by Shakspeare ("Anthony and Cleopatra"), wherein the swarthy queen, "brow-bound with burning gold," sent her diver down to put a salt fish on the unlucky Roman's hook, which "he with fervency

drew up." In classic times Oppian published his great poem on fish and fishing; and I mention him to simply say that he was probably the first to indicate a weapon like our present gorge hook used in pike fishing. These are the words—

"He holds the labrax, and beneath its head
Adjusts with care an oblong piece of lead
Framed from its form a dolphin, armed with this
The bait shoots headlong through the blue abyss,
Till some dark form across its pathway flit,
Pouches the hook, and finds the biter bit."

The gorge hook, as the reader will see hereafter, is specially constructed for manipulation as indicated in the verse.

So far as English anglers and tackle-makers are concerned, however, the art practically commenced with the publication of the "Treatyse of Fysshynge with an Angle," by the fair prioress of Sopwell, near St. Albans, in 1496. This Diana of England tells us frankly that hook-making is the most difficult art, and she figures in the quaint old-world style, the shapes and sizes. I have copied the engraving as a curiosity, so that when I come to speak of the hooks of to-day, the form of which is shown in Fig. 4, the reader may compare the advance. Fig. 1 is an exact facsimile from the "boke," and they are directed to be made by means of several tools, also figured in her "boke." These include a file, hammer, anvil, and a pair of pincers, like the horns of some night-mare black stag beetle. How fish could ever be reconciled to be taken by such impracticable weapons as these hooks, I as an angler cannot divine.

Since the above was written (June, 1884), I have had the good fortune of seeing a fish weighing 111 lbs.

which was caught on tackle quite similar in character to that shown at Fig. 3. This was a magnificent specimen of the Silver King, or Tarpon, of Florida (*Megalops Thrissoides*), captured in the latter end of March (1885), by a Mr.

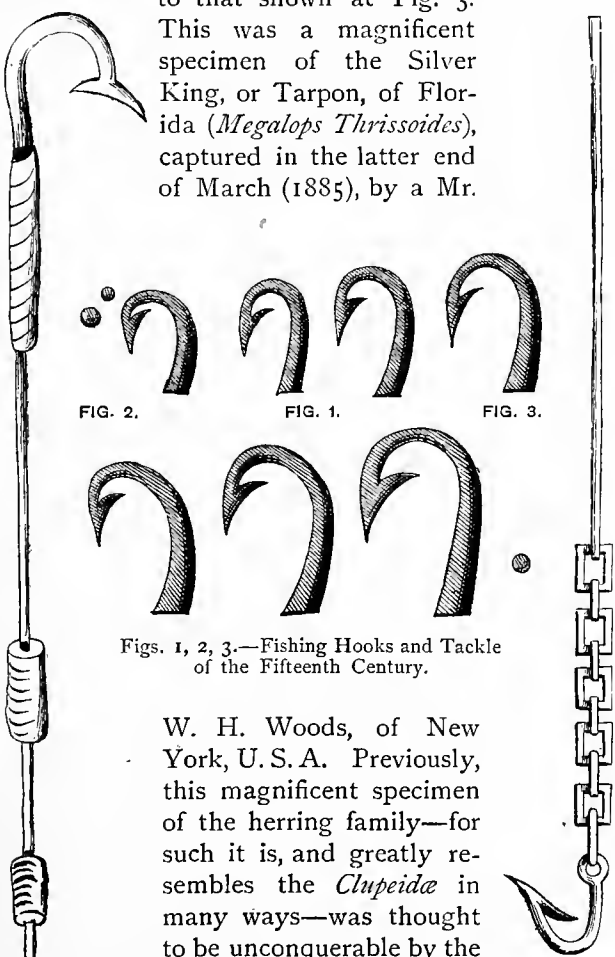


FIG. 2. FIG. 1. FIG. 3.

Figs. 1, 2, 3.—Fishing Hooks and Tackle of the Fifteenth Century.

W. H. Woods, of New York, U. S. A. Previously, this magnificent specimen of the herring family—for such it is, and greatly resembles the *Clupeidæ* in many ways—was thought to be unconquerable by the angle. On being hooked by even the stoutest of wire-bound hooks, its in-

stant tactics were terrific leaps out of water and shakings of the head, which, together with the immense size and swiftness of the fish, ordinarily upset the angler's nerves and broke his tackle. Mr. Wood, however, determined to prepare for this usual destructive power, and used brass chains instead of wire or gimp—so successfully, that he landed five fish in as many days weighing an average of 93 lbs., fishing the while fairly with rod, reel, line, hook, and bait. Decidedly the greatest angling achievement of the nineteenth century. The chain used was about the size of that shown in Fig. 3; but the hook was a large cod hook of the best make as regards temper and material.

Figs. 2 and 3 also show her so-called "rennynge" (running) line with the hook attached. The tyro will be astounded to notice the advancement in neatness and delicacy since that day, when it seemed necessary to use such terrible engines. They seem rather to belong to that species of fishing chronicled in the rhymes:—

> "For angling rod he took a sturdy oak,
> For line a cable that in storms ne'er broke;
> His hook was baited with a dragon's tail,
> And then on rock he stood to bob for whale."

As I shall show in the chapter on fly-making, equally absurd flies—"woll donnes" (wool duns) were in use. These, however, do not seem to have been quite so rudely made as the hooks furnishing a part of them. Rod-making was of an extraordinary character; and just for the sake of quoting a curiosity of mechanical direction in this introductory chapter, I shall give the words of the good Dame Berners from the celebrated "treatyse" itself:—"And how ye shall

make your rodde craftly I shall here teche you. Ye shall kytte between Mychelmas and Candylmas a fayr staffe of a fadom and a halfe long and arme grete (size of one's arm), of hasyle, willowe, or aspe, and bethe hym in an hote ovyn, and sette hym evyn, then let him cole and drye a moneth. Take thenne and frette (tie about) hym fast with a cockershote cord and binde him to a form or an evyn square grete tree. Take thenne a plumber's die that is evyn and streyte and sharpe at one eynde, and hete the sharp ende in a charcoal fire till it be whyte, and berrne the staffe therewyth through eyver streyte in the pyth at both endes till they mete, and after that berrne him in the nethyr ende wyth a byrde broche (bird spit), and wyth other broches, each grater than the other, and even the gretest the laste, so that ye make your hole aye taper nere. Thenne let him lye stille and kele two dayes; unfrette (untie) him thenne, and let him drye in a hous rofe in the smoke till hee be drye. In the same season take a fayre yard of green hasyle, and bethe him even and streyghte, and lete it drye wyth the staffe; and thenne whenne they be drye make the yard mete into the hole in the staffe, and to performe that other half of the croppe, take a fair shoote of blacke thorne crabbe tree, medeler or of jenypre, kytte in the same season, and wel bethyd and streyghte and frette (tie up) them together fetely, so that the croppe may just enter into the sayd hole, then shave your staffe and make him tapre well, then vyrell (ferrule) the staffe at both ends wyth long hopis of yren (hoops of iron)."

The illustration of this notable weapon it is hardly worth while to reproduce here; but I may say that it portrays an exceedingly rough hoe-handle-like imple-

ment, of a make quite strong enough to summarily land any fish known now, barring the "Silver King" perhaps. Of this the reader, however, may be well assured, seeing that it is as thick as one's arm, and bound about with "hopis of yren."

An account of the state of tackle in the early part of the seventeenth century is given in verse by John Dennys—the laureate of angling—which I may be forgiven for quoting in a work of so practical a nature on the score of its quaint shrewdness and truth.

"But when in time the fear and dread of man
Fell more and more on every living thing,
And all the creatures of the world began
To stand in awe of this usurping king,
Whose tyranny so farre extended than
That earth and sea it did in thraldom bring,
It was a work of greater paine and skill
The wary Fish in Lake or Brooke to kill.

"So worse and worse two ages more did passe
Yet still this Art more perfect daily grew;
For then the slender rod invented was
Of finer sort than former ages knew;
And hooks were made of silver and of brass,
And lines of hemp and flaxe were framèd new.
And sundry Baites; experience found out more
Than elder times did know or try before.

"But at the last the Iron age drew neere,
Of all the rest the hardest and most scant;
Then lines were made of silke and subtile hayre,
And rods of lightest cane and hazell plante,
And hooks of hardest steele inuented were,
That neither skill nor workmanship did want.
And so this art did in the end attaine
Vnto that state were now it doth remaine."

I do not know that I should be doing any good by prolonging the slight account I have given of

ancient tackle, nor by tracing the developments which the last four centuries (nearly) have produced in the general outfit of the angler. A pretty fair idea can be gathered of its condition at the time when the first volume on fishing was produced in England, and the successive refinements—which, curiously enough, seem also to have so refined the fish as to have become necessities—would be of no practical use to the tyro. Isaak Walton, in his "Compleat Angler," gives us no valuable hints as to tackle manufacture, though, to be sure, the knowledge he possessed was no doubt in tolerably good case by 1653, the date of the publication of his book. He quotes an old rhyme as being sufficient in its enumeration, though of course it could hardly have been so :—

"My rod and my line, my float and my lead,
My hook and my plummet, my whetstone and knife,
My basket, my baits, both living and dead,
My net and my meat, for that is the chief;
Then I must have thread and hairs, great and small,
With mine angling purse—and so you have all.

Hooks had greatly improved in Walton's time, for in some editions he mentions a maker whose name is even now well-known, as applied to a particular make and shape—I mean Kirby. It is said that Prince Rupert communicated the secret of tempering them, to one of this name during the troublous times of King Charles I., and that so late as 1760 one of the family was living, having preserved the secret. The Prince, however, in this has a rival in the great architect, Sir Christopher Wren. If the latter invented the better tempering, it is nevertheless certain that the German prince greatly improved both the shape and material of his day. Fig. 4 shows the "Kirby"

shape as now made, though of course the processes are widely different.

No angler of the present day attempts the making of his own hooks, from economical motives. By the bye, Mr. Seth Green, the great American fish culturist, makes a barbless hook from needles for his own trout-fishing, and prefers them to all others. In the time of the good Dame Berners, of course, no choice existed—either the angler fitted out his tackle basket from beginning to end, or he didn't go fishing. At any rate, from the specimens of hooks of that day it is tolerably clear there were few wholesale makers of very advanced skill.

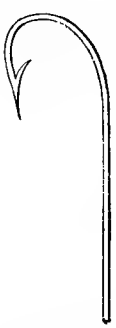


Fig. 4.—Modern Fish-hook, "Kirby" shape.

Yet it is remarkable, as showing the actual development of mechanical skill, that the whole of the ten processes necessary in the perfecting of a modern hook of ordinary make, are carried out purely without self-acting machinery; and the qualities, therefore, of each hook are directly the result of the handicraft of the workmen. The selection of the steel is purely one of personal experience, in reference to its either being good or bad; and though each stage in the manufacture of a hook is reduced to its minimum of complexity, yet the labourer must be skilled—in fact, the making of a hook from the time it exists as steel wire only till it is turned out packed in hundreds, is a chain which is, like every other, no stronger than its weakest link; or, to put on one side metaphor and speak plainly, such a hook is good or bad according to whether all have done their work

well in its production, or have not. Let me advise the would-be-tackle-maker, never, under any circumstances, to omit trying his hooks, and on no account to use one that is too brittle or too soft.

I am not aware that the process of hook-making has ever been described in detail before, that is, as it is carried on in that great centre of needle and fishing-tackle making—Redditch. By the kindness of Mr S. Allcock I recently had an opportunity of witnessing the whole process as carried on at the Standard Works, and it is probable that a more interesting operation does not exist. Shortly, it may thus be explained. The wire used in river hook-making is chiefly Swedish and of cast steel, varying of course in gauge, according to the requirements of the hook to be made. The various stages are as follows, seriatim :—

First. The operator takes a number of wires ; and the correct length being arrived at, he quickly and sharply cuts them into lengths with a large pair of shears. The metal being in its soft state, this is not a laborious job, but seems to be performed with ease ; this may however arise from long practice.

Second. A number of the shafts thus prepared are arranged horizontally side by side on a plane surface with their right-hand ends against an upright. A knife, ground hollow, is now drawn against the shafts, and the beard or barb is thus formed, which by a slight turn of the knife is opened. We have now straight shanks or shafts, with a beard or barb and no point.

Third. The points are now carefully filed by men and boys. Using a pair of tongs made specially to hold the wire, and rapidly turning the same, they put

a point on it instantly. In the case of bayonet-pointed-hooks this process, of course, takes a longer time; but the round form of point is easier to obtain. A little wooden block is placed at the bench in front of each filer, and it is surprising what a quantity each child I saw could turn out per hour.

Fig. 5.—Mould for Shaping Hooks.

Fourth. This stage is very interesting. It is now necessary to give the hook its form, and for this purpose the boy or girl operative holds a mould mounted on a wooden handle, fashioned like the pot-hook of our copy-books. With one deft movement the beard is hooked round the shorter end and a quick turn brings the shank straight with the shank of the mould. Fig. 5, imperfectly shows the *tout ensemble* of the little tool. The mould consists of steel let in the wood and there fixed rigidly.

The Fifth process consists of shaping the ends according to the desired pattern. (See Fig. 5a.) In simple flattening this is accomplished by means of a small anvil fixed into a block of some hard wood, the boy striking the shank with a hammer. The other patterns are produced by separate processes.

Process Six is a most important one, and it consists of the hardening of the hitherto soft steel hook. Mere description will not suffice to do justice to this stage of hook manufacture. The heat required for each style and size of hook varies; and, as I before hinted, there is all the difference between a hook too hard or too soft. In the former case, immediately it is

struck against the hard jaw of a fish, it flies, either going at the bend or at the point. Nothing is more irritating to the trout fisherman than to find the fish pricked and gone, and the point also minus; and this not discovered, possibly, till he has hit, and, as he thinks, by some fault of his aim missed the rising fish. The best hooks are those which are tested and found of perfect temper, and they are, of course, of the best price. Those which, by some mistake or accident, or unavoidable chance, are not deemed A 1, are sold at

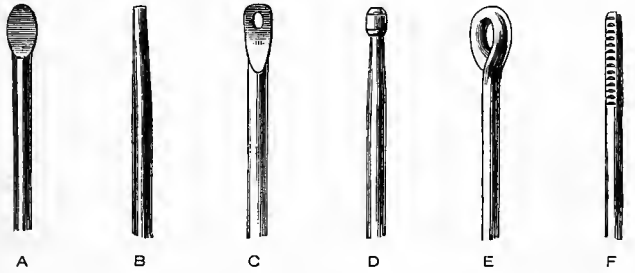


Fig. 5a.—Shanks or Hooks, (A) Flatted, (B) Tapered, (C) Eyed, (D) Knobbed, (E) Ringed, (F) Marked.

a considerably less price. These go to those tackle-makers whose flies, etc., are cheap—very cheap, and often equally nasty. At Messrs. Allcock's I was surprised to find that the hardening medium was cod liver oil. The huge vat into which the hooks fall had a most unpleasant, but I was told a most beneficial fragrance.

The Seventh process is, of course, the tempering. The hooks are let fall on a fine wire sieve in the cod oil before referred to, and are thence taken and, together with fine silver sand, are mixed and turned about in a frying-pan kind of receptacle over an

aperture like that of a kitchen range, beneath which is a charcoal fire. Ever and anon a hook is picked out and tested; and as soon as one lot is deemed sufficiently tempered, it is passed on one side, and another takes its place. Of course the experience of the operator dictates the finish of each parcel; and the man is always selected from those of the highest capabilities, both as regards fish-hooks and needle-making.

Eighth. The polishing is the next on the list, and this is performed in two ways. I believe I am right in saying that the following is the process for the best and smallest river hooks. They are placed in an oblong bag with fine emery powder, and one man taking one end and another the other, they are rapidly shaken end to end, until the dusky colour caused by the tempering, etc., is rubbed off. The other way is to place them in barrels moving more or less rapidly round on their bases, *inclined at an angle* of 45° from the perpendicular. It is found that this inclination has a greater and more certain effect toward the end in view than an upright or horizontal position would have. They are next washed, if this be necessary to remove the emery, and dried in sawdust.

Ninth process. This is termed japanning, and as each firm has its own special method, it is not to be expected that I can give it. The ordinary blueing is found on some hooks, others are left bright, others are black with, as it were, a thick coating of black varnish. The best tint is that produced on the browned hooks of Mr. C. Court, of Redditch, who is now with Messrs. Allcock, samples of which I have had in use for a long time. They never corrode, and are practically unseen by the fish.

The Tenth process is the very ordinary one of counting, and papering, and packing, which is ordinarily done by girls, who take up the hooks with a knife, and, balancing them on its edge, turn over their hundreds with incredible speed—indeed, throughout the Standard Works at Redditch, the speed attained by the nimble and deft fingers of the girls was incredible. On the occasion of my visits the absence of *visible* supervision in this vast establishment was a source of continual wonder at the splendid administrative and kindly ruling of the chief, Mr. S. Alcock. This is a feature I cannot omit to refer to.

The patterns of hooks in use by the British tackle-maker are many in number, and consequently it is obvious that this brief description will not exhaust the processes which apply to triplets, the spring snap, nor to eel hooks with a ring for the reception of the line at the end. Some, and indeed the chief, of these varying kinds of hooks are represented; and perhaps this will not be a bad opportunity to draw attention to them with a view to familiarizing the tyro with the kinds he will be called on hereafter to refer to and use.

Fig. 6 shows the ordinary triplet, which is made in all sizes according to the scale given in Fig. 18 for single hooks. This is used in trout, perch, and pike flights, etc. Fig. 7 is a similar make employed on artificial baits; the ring admitting the entrance of a split ring, split swivel, etc. Fig. 8 is another kind of triplet used in the "snap" flight for pike. Fig. 9 is chiefly employed for live bait tackle for trout and perch. Figs. 10 and 11 are also hooks used in live baiting, and the deadly trimmer for pike. Fig. 12, in conjunction with a single hook as in Fig. 13, is

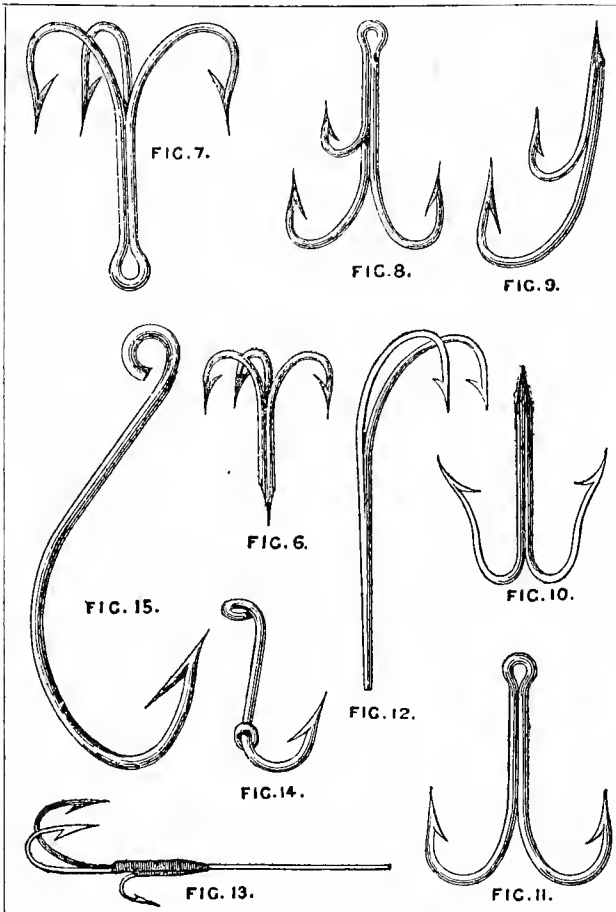


Fig. 6.—Ordinary Triplet. Fig. 7.—Triplet for Artificial Baits. Fig. 8. — Triplet for Pike and "Snap" Fishing. Fig. 9.—Double Hook for Live Bait. Figs. 10, 11.—Hooks used in "Bed Baiting." Fig. 12.—Double Hook for "Snap" Fishing. Fig. 13.—Double Hook, with Third Hook attached at Back. Fig. 14.—New Make of Lip Hook. Fig. 15.—Cod Hook, actual size.

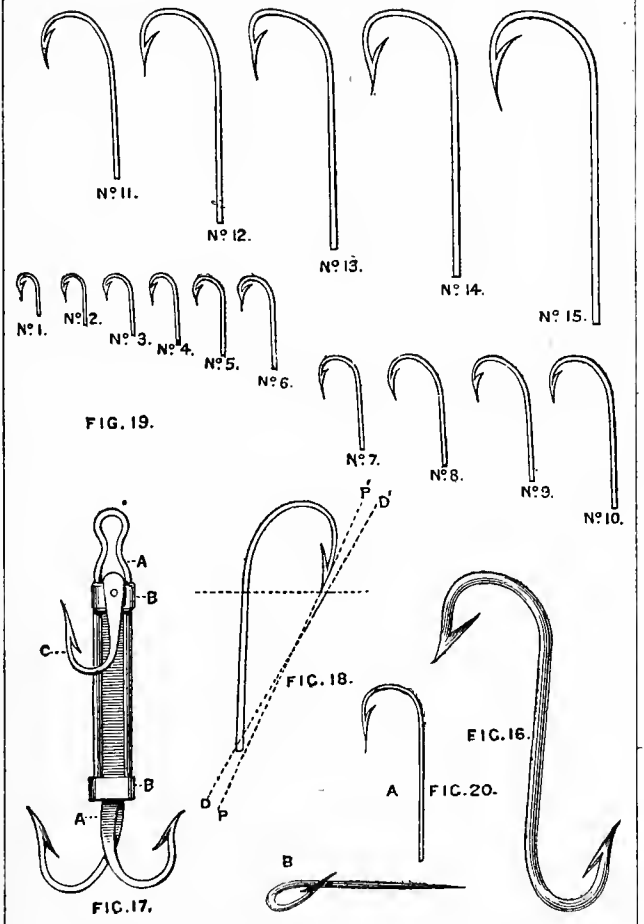


FIG. 19.

FIG. 17.

FIG. 18.

FIG. 16.

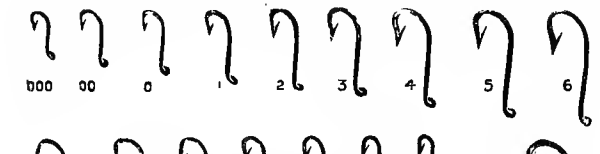
FIG. 20.

Fig. 16.—Back Hook. Fig. 17.—Old-fashioned Snap Live Bait Hook. Fig. 18.—Author's Ideal of Hook. Fig. 19.—Sizes of Hooks Graduated from No. 15 to No. 1. Fig. 20.—Sneck Bend Hook—A, View from above; B, Side View.

also used for snap fishing. Fig. 14 indicates the new make of lip hook on the "Pennell" flight. Fig. 15 shows a cod hook, natural size; and Fig. 16 the "back" hook also of Pennell's flight. Fig. 17 is the old-fashioned snap live-bait hook, and needs a little further explanation, as it is unlikely I shall again have occasion to refer to it. A A consists of a double hook all in a piece, and made so as to spring asunder if force be applied to the upper loop; B, B, are hollow and fixed to a slight framework of steel, with a hook fixed at the upper B, and shown at C, to which the bait is hooked. The action of the hook is simple. When a fish (pike, etc.) has seized, a stroke is made by the angler, B, B fly up, leaving A and its companion hook (now tightly closed) wide open, of course the "biter is then bit." This arrangement is supposed to be very deadly; but it is seldom used now, except by the most antiquated fishermen.

The choice of a pattern of the ordinary single hook is a matter of supreme importance to the angler, and necessarily so to the tackle-maker or the fisherman's servant. The desiderata in a hook are broadly—penetration, holding power, lightness, and strength. Of this there can be no question. Penetration, of course, means that when a fish is struck, the direction of the line of impact should be almost identical with the direction of the force applied, and that the point should be as sharp as possible, that the minimum of force only may be lost.

Fig. 18 shows my ideal of a hook which Messrs. Allcock are producing, with bayonet points and needle eyes at the end of shank, for attachment without whipping, when this is desired. D D′ indicates direction of force applied; P P′ indicates the point of



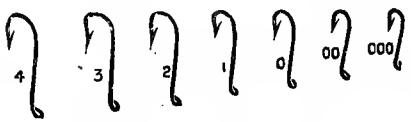


FIG. 21

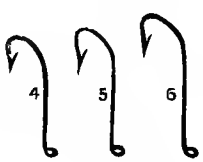


FIG. 23

FIG. 22

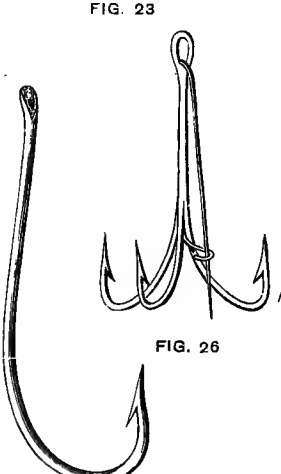


FIG. 26

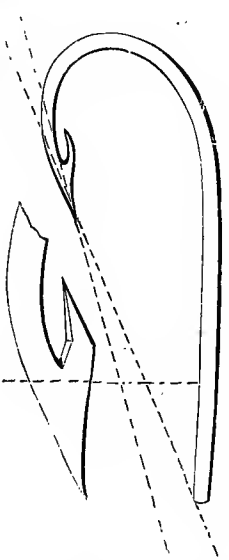


FIG. 25

FIG. 24

Fig. 21.—Hutchinson's Eyed Trout Hooks. Fig. 22.—Hutchinson's Eyed Hooks. Fig. 23.—Long-May's Eyed Hooks. Fig. 24.—Good Make of Eyed Hook. Fig. 25.—Keene's Hook, with Sharp-edged Barb. Fig. 26.—Table Hook, with Baiting Needle attached.

impact. It will be seen that the lines are within a trifle of being identical, and I don't doubt but they might be made quite so. My drawing is not so exact as it should be, but it sufficiently explains my meaning. Now the *holding power* abides in the extension of the barb and the minimum of distance between the barb and bend opposite, as indicated by the dotted line drawn across. If the barb be long, and proportioned in its "openness" to the distance between point and bend, so that they be not antagonistic to each other (when the point has entered the fish, by reason of not sufficient room being given), then I conceive such a hook is theoretically, and if these rules be carried out, of course practically, perfect. Lightness and strength are of course extremely necessary—in fact, more necessary than any other essential, especially when trout fishing is on the *tapis*. These, however, are qualities about which there is no sort of theory, being patent to all on the face of the subject. Alas! tackle-makers systematically forget it, however. Fig. 19 represents as nearly as possible the shape of the hook I deem the best for small hooks. The bayonet barb is not shown, however, nor is the needle eye. Both are optional. The sizes are the same as those of Mr. Cholmondeley Pennell, and conveniently graduate downwards to No. 1. Smaller sizes can be obtained.

There are other kinds of hooks which find favour at the hands of various makers, but I prefer the above-named. The Sproat, Sneck, Kendal, Crystal, Kirby, and Round, are the chief. Of the Sneck bend, one remark should be added. Fig. 20 shows its plan and elevation. The hook is turned to one side in the mould, so that it is, in technical parlance, "rank" on

one side. Palpably, therefore, when a fish takes the bait, it is in greater chance of fouling the point. This "rankness," in my opinion, however, injures the penetration. However, the hooks shown in Fig. 19 can be made in this way, if desired.

Perhaps the most noticeable of modern fly-hooks —whose growing popularity amongst fly fishers forbids me to ignore them—are the "Hazle-eyed Trout fly-hooks," made by Messrs. Hutchinson and Son, of Kendal (Fig. 21). They are described as of the "Sneck Limerick bend," that is, they are a modification of the Sneck and Limerick makes. Fig. 22 represents the hook made double for lake trout and salmon; Fig. 23 exhibits it with lengthened shank, especially formed to suit the artificial grub and May fly. Fig. 24 shows another make of eyed hook, also in demand. Over the shapes, ownership, and excellence of these hooks there is yet an internecine war raging, and I do not propose to enter the lists except to say that the eye is unquestionably a feature of great usefulness, rendering the fly more lasting, and reducing the chances of losing a fish through the gut at the head wearing almost to the vanishing point. That ingenious angler and able writer, Mr. Cholmondeley Pennell, has also brought out an eyed hook with the eye underneath. Let us hope that it will not suffer the extinguishment to which his "three fly" system was doomed.

Fig. 25 is a hook I have devised since residing in America. One catches so many small trout requiring to be returned to the water, that the ranker barb is a nuisance, and often kills a fish in its extraction. I therefore suggested the pattern shown, and, moreover, it should be filed to a sharp edge on the under side

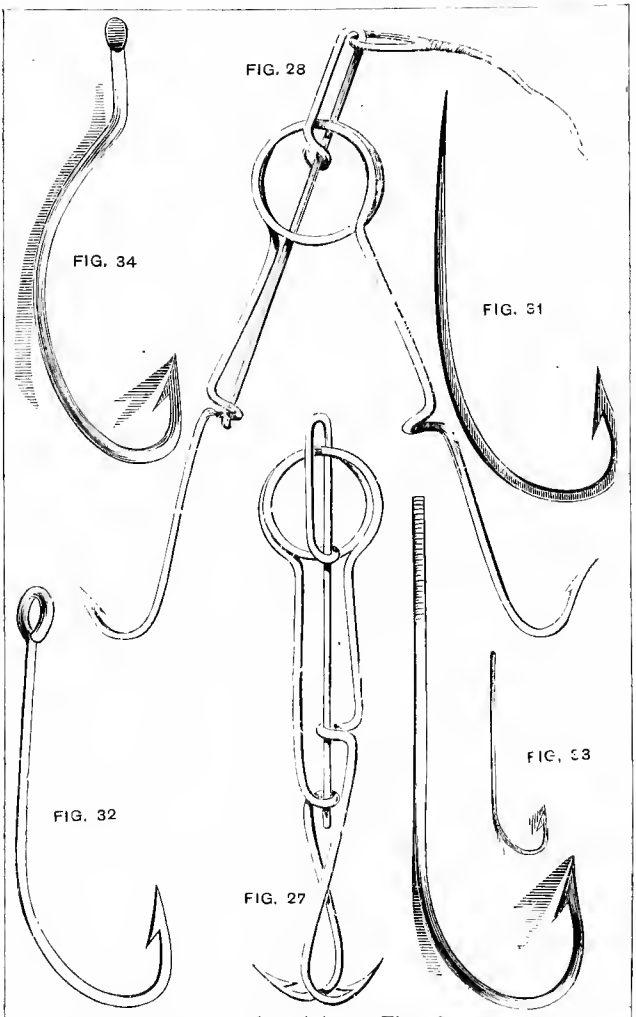


Fig. 27.—Hook 'em and catch 'em. Fig. 28.—Hook sprung.
Figs. 31, 32, 33, 34.—Patterns of Hooks used in United States.

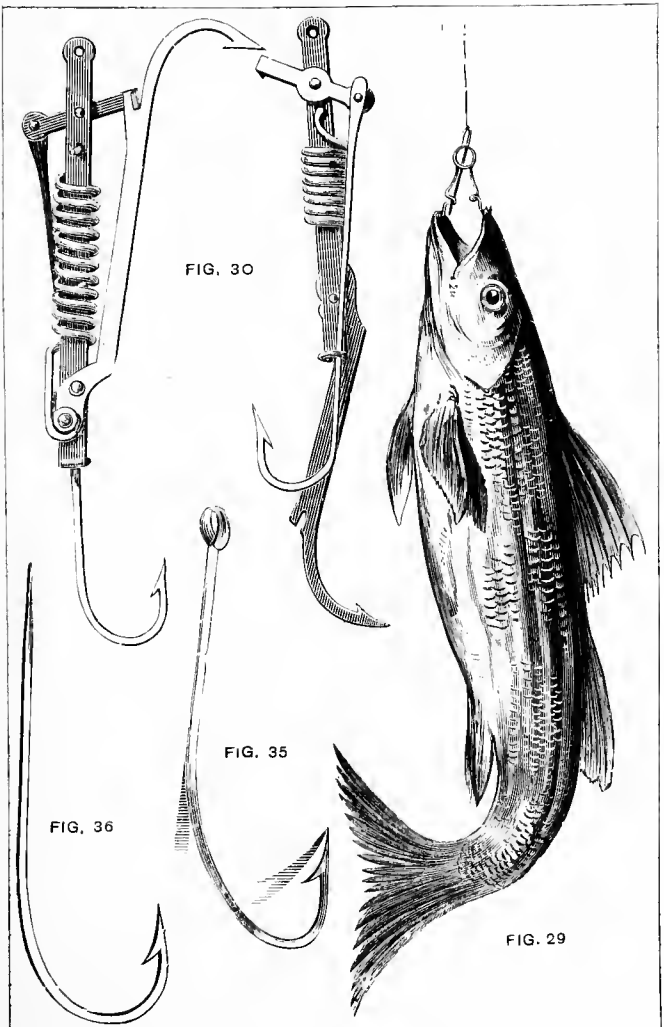


Fig. 29.—"Caught 'im." Fig. 30.—Yankee Doodle.
Figs. 35, 36.—Patterns of Hooks used in United States.

of the point, as exhibited at A. B represents a section of the point and barb at A. The lines of force applied and impact are shown by the dotted lines, and, as they should be, are nearly identical. Whether for large or small fish, especially those with bony mouths, I am satisfied that this will be a good hook. *It cuts as well as pierces its way into the fish's mouth.*

The characteristic ingenuity of the Americans has produced some very convenient devices for comfort, as well as novel plans for catching fish. Some of these are decidedly questionable from a *sportsman's* point of view. Fig. 26 is however not open to this objection, and consists of a treble hook furnished with a needle which is inserted under the skin of the live bait, and thus obviates the plan of thrusting the hook deep under the dorsal fin. Which process gives most pain to the bait, the latter would probably be best able to decide.

Figs. 27, 28, and 29 are Transatlantic, and in my opinion belong to the category "objectionable," from a true sportsman's point of view, unless indeed one is intent on getting one of the voracious pike from the trout stream, or of the equally detested eel. "Snap 'em and catch 'em" is the explanatory and racy sobriquet of the implement; and I certainly think the principle might be utilized for eels or pike, under the conditions referred to.

Fig. 30 shows another spring tackle which, as an infernal machine of torture, has not its equal. Get it into your hand, as I did some time since, and you will find it so. The drawings explain themselves.

Figs. 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, are the patterns of hooks which are mostly used in the United States; and when the vast numbers of

fish and their different qualities on the hook are con-

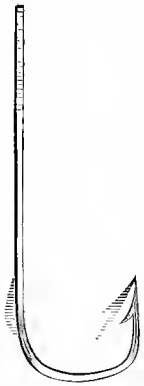


Fig. 37.

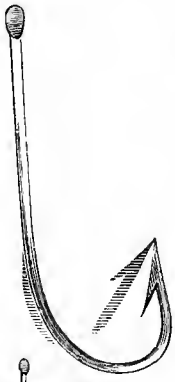


Fig. 39.

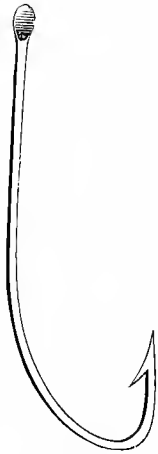


Fig. 38.

Fig. 41.

Fig. 40.

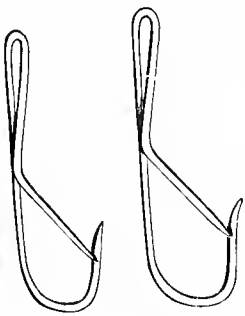


Fig. 42.

Figs. 37, 38, 39, 40, 41.—Forms of Hooks used in United States.
Fig. 42.—Barbless Hook.

sidered, these illustrations are valuable, as showing the hooks which experience has selected—in any case they should find a place in a work of the nature before the reader.

Fig. 42 is a barbless hook, which works well. You certainly have no trouble in hooking your fish, but there is a great deal more than I care for in the unhooking process. I have made flies on them and find they answered satisfactorily.

I have thus given a list of the chief of the hooks necessary to the angler, and have, at the risk of prolixity, represented and described every species I thought the angler in Great Britain or any other country will need. It is desirable that the reader, if he be a complete beginner, should pay peculiar attention to this subject of hooks, because where they are represented in combination in later chapters, his familiarity with them will be of great service. Doubtless I could have said a great deal more in reference to the barb, bends, materials, and the general theoretical laws governing their make. I refrain, however, being in no wise desirous of entering into a "battle of the hooks;" nor indeed have I time to spare, for within a short distance a tributary stream of Lake Erie ever invites absorption of all my spare time.

Thus much, however, I will say, at the risk of repeating myself, and the words underlie the selection of *all* hooks: The hook should have high penetrative and holding powers; the closer the line of force applied agrees with the line of impact, the more perfect the penetrative power—these two premisses are incontrovertible.

The hooks figured in this chapter can all be procured of Messrs. Allcock, of Redditch, through a retail dealer.

CHAPTER II.

KNOTS—GUT, HAIR, AND GIMP.

THE average Briton is a bad hand at cordage, but there are several ties and knots the learner of tackle-making *must* be master of before he can hope to put a length of gut or gimp together properly. It will fall to his lot to chiefly tie gut, and often this is so fine as to require the minutest care in such joining. In all cases the gut or hair to be tied should be soaked in warm water. I have found that the addition of a little glycerine to the water is beneficial with the coarser kinds of gut, as it seems to keep it moist and soft longer than water seems to do, especially if it be hard. The bath should not be continued too long, as it is apt to injure the texture of the hair or gut. Gimp is not usually knotted, but whipped when a join is necessary. Of course, however, it is tied to the running or reel line, and Figs. 43 and 44 show two methods of doing this.

A in both figures indicates the running line, and B is the loop of the gimp trace. The figures themselves explain the mode of tying. Fig. 43 is an extremely useful tie, and only requires the application of the teeth to C, and it instantly becomes free, though under no circumstances will it "draw." In all these knots it

is eminently necessary that the tyro should take pains to tie them by the drawings—in fact, to learn them, before he proceeds further with my directions.

Fig. 45 shows the cloven hitch, which is used as a fastening-off in hook-tying and whipping generally. In fly-tying, as a final tie, I myself use nothing else, though others do so. A cloven hitch is always secure, and if it be deemed that extra safety is needed, it may be repeated.

In Fig. 46 we have the true "Sailor's Knot;" and as it is easily tied, and, when the ends are neatly whipped in, as secure as any, it is not surprising that it is exceedingly popular, especially among amateur tackle-makers. Everybody, of course, knows how to tie it; but I am justified, by my own experience, in adding one word of caution: be very careful when you do tie it to see that the two short ends at A, A are both on one side, and not, as in Fig. 47, on different sides. I recollect in my noviciate that I repeatedly made this mistake; and, as sure as fate, whoever fished with the gut tackle I made, lost his fish sooner or later. And why? Because Fig. 47 *will draw.* A and A are on different sides. I have more than once defied even good cordsmen to tie the knot off-hand; in fact, like Isaak Walton, I am fond of a "good catch," whether of fish or humour; and it has immensely amused a company of anglers before now to find me challenging them to tie so simple a knot as Fig. 47. "A Sailor's Knot it is," they have said, "and it will never draw." "It is not a Sailor's Knot," I have retorted, "and it *will* draw; examine it again, my good friends;" and with that some one has pulled it tightly and so gradually drawn it. "Now," I have said, "you all saw the knot, and saw it draw. I challenge any

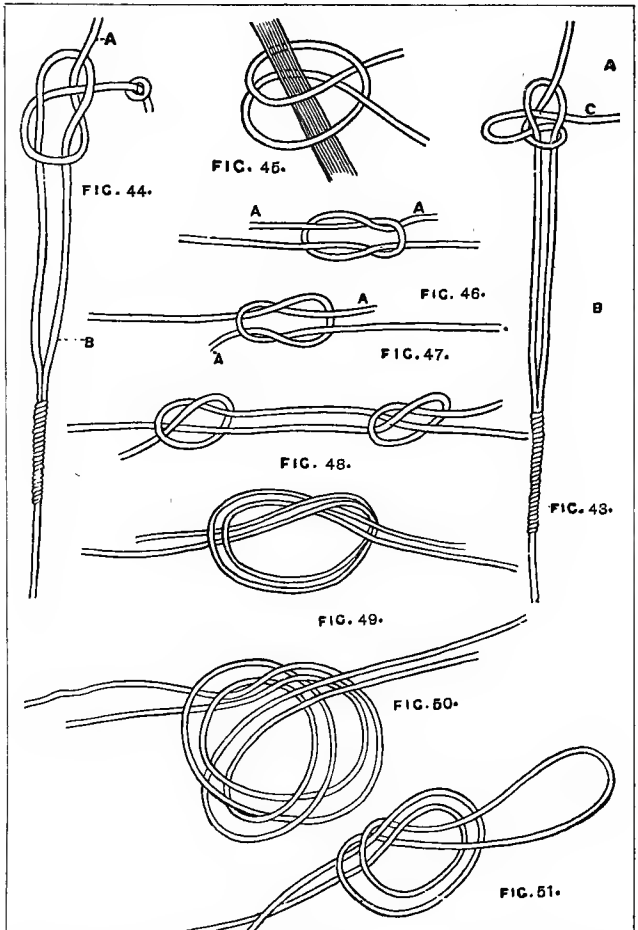


Fig. 43.—Attachment of Gimp to Running Line. Fig. 44.—Another mode. Fig. 45.—Hitch used in Fastening-off in Hook-tying. Fig. 46.—True Sailor's Knot. Fig. 47.—False Sailor's Knot. Fig. 48.—Fisherman's Knot. Fig. 49.—Improvement on Fisherman's Knot. Fig. 50.—Best Knot for Fishing-tackle Makers. Fig. 51.—Loop on same principle.

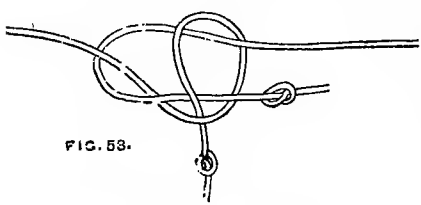
one to tie it again so that it draws," and immediately some one has tied Fig. 46. And so the mystification has gone on to the verge of irritation, when the explanation of the position of the two ends has settled the affair.

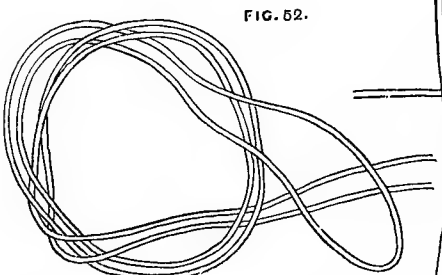
Fig. 48 is termed the "Fisherman's Knot" by most writers on fishing, and I admit it to be an exceedingly useful one for the attaching of flies, etc. It is easily made, and when drawn tight is very neat. Its only fault is, that it is apt to draw itself so tight under a strain that it cuts or crushes the material of its own self, and thus, on striking a good fish, Piscator finds himself minus gut, hook, and fish. For this reason it is unfit for connecting the links of gut in a fly-casting line, which would contain, perhaps, fourteen or fifteen links; for the gut on drying shrinks, and often becomes brittle just where this knot has strained it. Fig. 49 is a much better knot. There are fewer convolutions, and hence fewer bearings where the strain falls. It never contains an approximation to an angle, no matter however tight it is drawn, and it is therefore much preferred to Fig. 48 on that score.

Fig. 50 is a knot which, though a modification of the preceding, is so exceedingly secure and neat when properly drawn tight, that I unhesitatingly pronounce it the best in the repertoire of the tackle-maker. It is tied by first forming the knot Fig. 49, and then turning the ends again round and through. In fact it is a double Fig. 49 simply. Of course, as I before insisted, the gut must be well soaked, and the ends must be drawn absolutely tight. The short ends can then be snipped off as close as you choose. Fig. 51 shows a loop made on the same principle, and Fig. 52 is also a double of its predecessor. The whole of my

remarks relating to Figs. 49 and 50 apply to these, of course, taking into consideration the difference in form. A loop tied like Fig. 52 is therefore the most secure and neatest of any.

Of course, there are other ties and knots than those given, but these are the chief; and in my





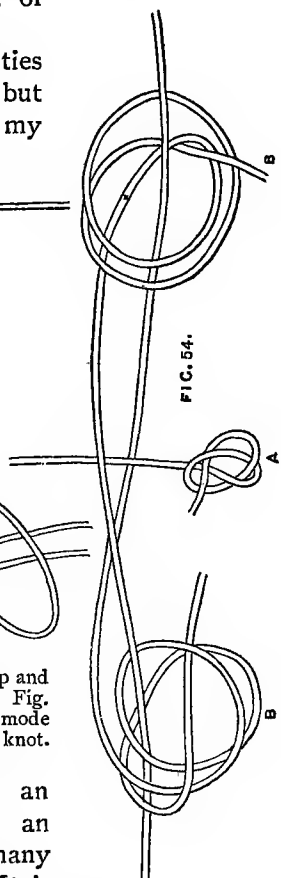


Fig. 52.—Safest and Neatest Loop and Knot. Fig. 53.—Weaver's Knot. Fig. 54.—Double Fisherman's Knot—A, mode of attaching fly at right angles inside knot.

experience, which, both as an amateur tackle-maker and an angler, has extended over many years, they are the best. It is true that Fig. 50 is not suitable for splicing a line which is long, and when the long and short end can

be passed through the loop together. In such cases the excellence of the Fisherman's Knot is apparent. To tie that, all one has to do is to put the ends about 3 inches overlapping each other. Now take them firmly by the middle of their overlapping between the finger and thumb of the left hand. Now pass one short end round the line and through itself, then turn to the other short end and do likewise; pull the short ends tight, and draw the two knots thus made together tightly. There is another tie of this nature besides the Sailor's, which ought, perhaps, to find place here, and it is one that I have always known as the Weaver's. Fig. 53 shows its form, and it will be seen that it is a modification only of Fig. 44. The knots at the short ends are necessary, because water is a great predisposer of slipping or drawing; and though it is possible that the silk line might not slip, there is no surety that the gut or hair might not if this precaution were neglected. Fishing is largely composed of precautions and preparations, so it must not be surprising if I am found very precise and minute in this particular. Fig. 53, I think, explains itself.

In Fig. 54 we have a knot of a most useful character. It is a double Fisherman's Knot, and is also useful for the joining of gut casts when broken, or, in fact, of any line in a similar condition. A simply indicates the method of attaching a fly at right angles inside the knot in question, so that when B, B are drawn together, the dropper, as it is termed, is practically immovable. This knot is used by fly fishermen in preparing gut casts with several flies on them before starting for the water-side. It is rather intricate to tie, but I see no insuperable difficulty.

I suppose I need scarcely tell my readers that for

the line nearest to the hook, gut, hair, or gimp is always employed. Some years ago, indeed, and even now in America, a kind of Indian weed,—of which I have samples before me,—were used in preference to either gut or hair. This weed is certainly strong, and might serve as a substitute, but I can certainly not place it above gut or hair for invisibility or durability. So late as 1760, however, Professor Rennie, in his notes to an edition of Walton, recommends it in preference to either of these materials; but the writers antedating even Walton, very rationally, I think, prefer the production of the stallion to any other, except gut, of course. In ancient times it is probable that a kind of byssus constituted the hook lines of the native fisherman. With the genesis of these things we have not to deal here, and I shall therefore pass on to a few remarks on the manufacture and nature of silkworm gut as in use among anglers of to-day.

Though Best, in his "Art of Angling," figures a queer frame-like machine on which, we are informed, the gut is stretched, I doubt if one angler in ten, reading the book, really understands what the drawing means; in fact, until comparatively recent times, the Spaniards, from whom the best gut came, enjoyed almost a monopoly. British enterprise, however, has terminated this; and at the time of writing several English firms have established branch houses for the collection of the worms and the manufacture of the article. Messrs. Allcock, of Redditch, have a large manufactory at Murcia, and I have in my possession a splendidly-executed photograph of the *employés* of the house assembled *en fête* to welcome the proprietor. Not daring to trust my memory as to the details of gut manufacture, I applied to Mr. R. Ramsbottom, of

81, Market Street, Manchester, for particulars; and his kind reply runs as follows:

"Silkworm gut is manufactured chiefly at Murcia, in the south of Spain, situated in a rich and fertile valley abounding in all kinds of fruits. Murcia is an ancient city, formerly a Moorish town, and a considerable number of the inhabitants of to-day are descendants of the Moors. For a distance of twelve miles round Murcia the peasants cultivate the silkworm, feeding them on the mulberry leaves, which are most plentiful.

"About the beginning of May, the worm is taken and plunged into hot vinegar; and after remaining there for a few hours the workmen slough off the body from the intestine: the latter is then stretched out, and the ends wound round a pin to dry." [I presume Mr. Ramsbottom means that the viscera, or silk sac, is stretched between two opposite pins.] "These threads are then gathered together (all sizes being mixed), and in a few days they are ready for sale.

"The gut is sold in this state by the pound weight, and is purchased by the gut manufacturers. The first process to which it is subjected is that of being put in a bath of soap and soda, when the outer skin or scale comes off. It is then laid on rods, and hung up in a room to dry, and thereafter placed in an oven for the purpose of bleaching. After this it is given out to girls, each of whom, sitting on a low stool, takes a quantity in her lap and puts separately each fibre between the teeth, and rubs it with a wash-leather. Each girl at night wraps up her work in a clean cloth, to which her number is pinned, and she is paid each night so much per thousand. Next day she takes the same roll of gut and sorts out the various lengths and

thicknesses. She then again rubs each strand with wash-leather. After this it is passed to the men, who tie it up in lengths of one hundred each, and wrap the tails with a coarse red thread."

Thus far, the concise and succinct description of a very large manufacturer. I may add, that the silk-worm is deemed ready for the process just when it leaves off eating, and a greenish thread is seen protruding from the mouth. Whether or not it would pay to breed the silkworms for the purpose in England, is a matter for other heads than mine. Of course, the gut, when it reaches England, is of a brilliant white pearly hue—just the worst appearance conceivable on a bright clear stream. It is, therefore, stained of a bluish-green or some other colour, according to fancy. Some anglers like a faint green, others a brown, others a yellowish tint, and so on. I here propose giving a few approved stains for gut and horsehair which will not only achieve the desired hue, but be also fairly innocuous—by this I mean, that I have not found them to accelerate the rotting of the gut. Judson's dyes are capital for some classes of feathers; but I cannot recommend them for gut because of their strong, and, in some cases, corrosive, nature.

Light Yellow, or Amber.—3 scruples quercitron bark, 2 scruples alum, 2 scruples cream of tartar, 12 grains madder, 8 drops saturated solution chloride of tin. Immerse three minutes, and dry in a warm room. Another: A handful of common barberry tree, and let the gut remain in an hour or two, and dry.

Green, Colour of Water Weeds.—Boil gut or hair in solution of alum to get rid of the grease, then in a solution of indigo, with sufficient turmeric to get the

exact shade. Another: A strong solution of green tea; put the gut in when the tea is very hot, and let it remain till the desired shade is obtained. Another pale water-green is thus obtained: Half pint strong ale, ½ lb. of soot, a little piece of alum, and a few walnut leaves. Boil these together half an hour, and immerse the gut. Another: Two quarts of strong alum water (handful of alum to quart of water) and a good handful of marigold leaves; boil till a yellow scum arises. ½ lb. of green copperas, and ½ lb. ordinary verdigris, pound them, and mix. Put in the gut or hair, and allow it to remain three or four hours. A bluish-green stain can be made from green baize. Boil a piece of same three or four inches square, with a good knob of alum, for three or four hours; if the dye be wanted of a deeper colour, add some writing ink. This latter alone, by the bye, makes a good stain. For brown, good French coffee makes a capital stain. Let the gut remain in some considerable time.

I have said that the gut is of the wrong colour when it arrives; it may also be added, that until quite recently it was almost impossible to procure it fine enough for trout and other fishing in clear streams. Even now the finest gut is a very high price. Resort is therefore made to a process termed "drawing"—although it must freely be confessed that "drawn" is not nearly so strong as the "whole" gut. A machine, very much on the same principle as that used for drawing wire, is used for this purpose. I, however, prefer a different procedure, which has, at least, the advantage of simplicity. Dip the gut in vinegar and water, and, having wetted the finger and thumb with this, rub them up and down the gut until sufficient of the substance has been frayed off. Then dip the gut

again in clear water (to wash away any traces of the vinegar), and after it is dry take an end of each between the teeth, stretch it tight, and polish with a dry wash-leather.

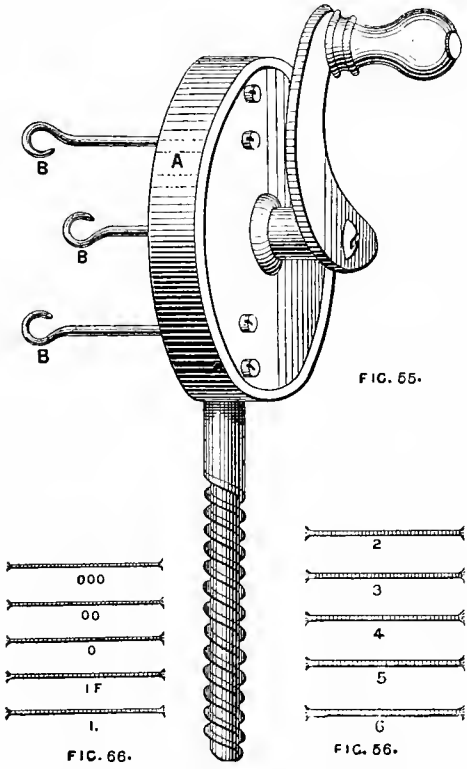


Fig. 55.—Apparatus for Twisting Gut. Fig. 56.—Gauges of Gimp.

Some of the best salmon and pike traces are made from twisted gut; in fact, they are becoming very fashionable, and reasonably so, as gut is so much more transparent and durable than hair. Nor is

twisted hair to be despised in the absence of gut. Fig. 55 represents the gut-twisting apparatus. The slightest knowledge of mechanics will exhibit its internal mechanism. The box, A, contains three pinions corresponding with the hooks, B, B, B, and these, in turn, are moved by a cogwheel connected with the handle. The box might be made of wood or brass, and the rest of the works easily put together by any one handy with metal-working tools. Of course, the twister is fixed rigidly to a solid bench or table. The hairs or gut are manipulated by the left hand, whilst the right turns.

Hair is, of course, of a very different texture to gut, and of a totally different nature, inasmuch as it is homogeneous and slightly tubular. Moreover, it is distinctly elastic, which gut is not, and it is on this account that it is sometimes preferred to the gut. The best hair is obtained from a stallion, or, if possible, thoroughbred, and it should be from a grey horse. I have some now which was plucked from a famous horse in Hampshire, and some of its strands will actually bear a dead weight of two pounds. Of course, there is plenty of gut that will beat this, but I mention the fact as being in itself very extraordinary.

It is always desirable for the tackle-maker to keep a good store of hair, for the reason that, even if he does not make up roach and dace hair-hooks and lines or fly-casts, he will now and then find a thread of some particular colour will exactly match a smooth-bodied fly, perchance. More of this, however, in the section devoted to fly-making.

Gimp consists of a fine, unwoven silk cord, surrounded by coils of brass wire. Its colour is either

that of silver or brass, and when in this state is, of course, extremely visible in the water. It is used in the manufacture of flights for jack fishing in all its branches, and as such is an extremely important item in the material-basket of the amateur manufacturer. The engraving (Fig. 56) shows the gauges of this article; and according to these it can be ordered from any tackle-maker, or direct from the wholesale makers, Messrs. Allcock, of Redditch.

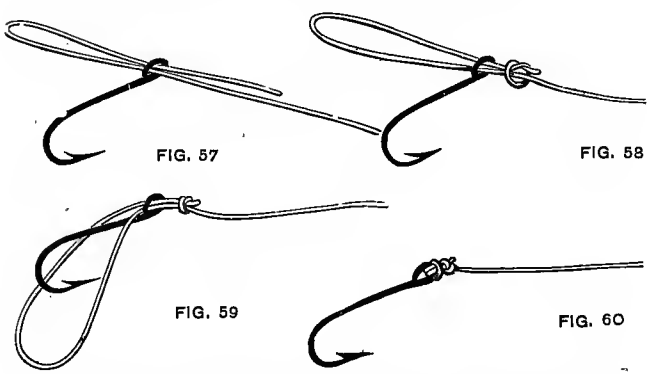
To obviate the visibility referred to in brass gimps, a solution of chloride of platinum, one to twenty parts of water, has been advised. My own plan is, to coat the gimp with blacklead, and then varnish it. The appearance is certainly not so good in the latter case, but it is assuredly cheaper, and does not rot the silk, which the chloride is very apt to do. A very weak solution of nitric acid also produces a good bronze colour, but it must be applied on a rag dipped very slightly, as I need not remark that the acid is highly corrosive. Sulphur fumes will darken the silver-coated gimps.

Though not strictly coming under the caption of this chapter, it may be as well here to advert to a little subject which is sometimes, by the side of the stream, of great importance to the fly-fisher, especially when fish are rising, and perchance his fingers are cold. I refer to the easiest method of tying the eyed fly-hook to the gut or hair casting-line.

In all fine fishing the casting line should be left without a loop. Fly fishers prefer to attach their flies by neater ways than the old-fashioned loop supplies. The end is therefore taken and passed through the eye of the loop, as shown in Fig. 57; the loose end is then passed round the main line and tied, as in

Fig. 58; the loop is then depressed, and the hook brought through it (Fig. 59); and finally, the whole affair is drawn tight, as in Fig. 60. I have drawn the knot on a larger scale in Fig. 61. A indicates that the short end of the main line is passed through singly, as shown by the arrow, instead of doubly, as in Fig. 57, if the eye be not large enough to admit the loop or double gut at once.

Fig. 62 is the safest knot possible for eyed hooks; but unfortunately, on a cold day, it is somewhat tire-



Figs. 57, 58, 59, 60.—Diagrams showing Successive Steps in Attachment of eyed Fly-Hook to Casting Line in Fly-Fishing.

some, owing to its many complications. Its absolute security, however, renders notice of it necessary here. The cut explains itself.

And here, as it will not be out of place in this chapter, let me give an item of information which is worth a great deal to every fly and other fisherman. Every one has suffered from the extreme brittleness of gut, especially in hot weather. Soak it, therefore, in glycerine for twenty-four hours; *it will never get*

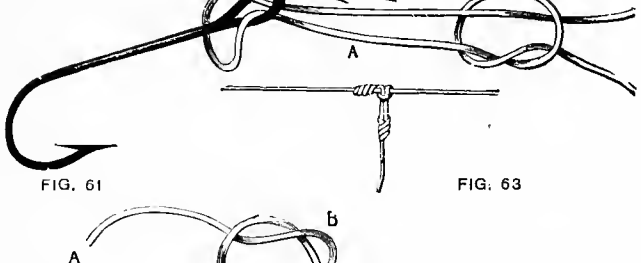


FIG. 61

FIG. 63

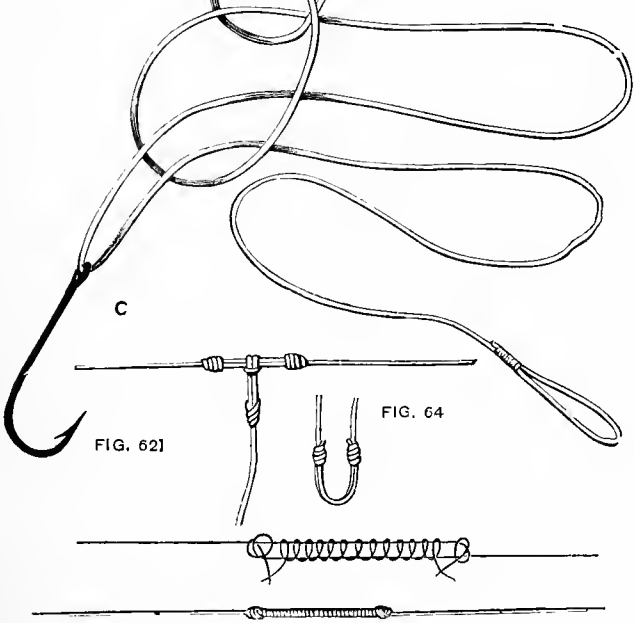


FIG. 62

FIG. 64

FIG. 64 A

Fig. 61.—Exhibition on larger scale of Knot shown in Figs. 57, 58, 59, 60. Fig. 62.—Safest Knot possible for Eyed Hooks. Fig. 63.—Ordinary way of fastening Dropper Fly to Main Cast. Fig. 64.—Keene's Method. Fig. 64A.—Another good and reliable way.

hard if this be done occasionally, and glycerine is a strong preservative of animal fibre. The felt pads of a fly-book, thoroughly wetted with glycerine, will keep so without change for years, and also keep the gut with unimpared flexibility and strength for years. Try it, O ye sapient fly-fishers—and don't forget where you got the wrinkle from!

Before closing this part of my subject, a few further remarks on gut and its use may be fitly added. First, here is a new way of making a casting line or leaver, which I have found remarkably useful amongst the black bass and other game fish of western America, and should recommend it for chub fly-fishing, and other of the heavier styles of fly-angling generally. Fig. 63 shows the ordinary way of fastening a dropper fly to the main cast. Fig. 64 shows my way of joining the gut of the casting line and putting on the fly. It will be seen that double strength is afforded just at the point where the friction of the dropper is most likely to wear the gut away. A casting line will wear double as long if prepared in this way, for my experience shows that it is usually at the knots a fly-cast becomes weak and breaks eventually. Another good join is made as shown in Fig. 64A. The two ends of gut are joined with the "fisherman's" knot, Fig. 48, and the knots are pulled tight, and the space between them whipped with fine silk well waxed.

As an addendum to the desultory remarks I have jotted down on the subject of gut, the Gut Report sent out annually by Mr. Ramsbottom, of Great Market Street, Manchester, is just to hand, and I quote such items from it as may be interesting and instructive to the amateur. It appears that there was a slight increase in 1884–5, about 6 per cent. on the whole of

the gut crop of Spain, thus raising the total production to about 32,500,000. The prominent features of the two previous years were still present however, viz., a scarcity of the very finest trout and the strongest salmon gut. In fact, all the salmon guts showed a diminution in quantity. "In fine, medium, and strong gut," says Mr. Ramsbottom, "the supply still remains equal to the demand, with a corresponding downward tendency in prices. Of the quality," he continues, "I am greatly pleased to report favourably. Though not quite so long, it is all round better than last year, a result due in a large measure to English supervision. This, I confidently expect, will in future years have a most beneficial effect on the gut industry of Spain."

As gut is a most important item in the amateur's operations, I give some of the prices of Mr. Ramsbottom's list, premising, however, that I have absolutely no interest in so doing except to benefit the reader by pointing out the cheapest and best article I know of.

"Corta" gut, 6½ in. long, fine, common quality, *2d.* per 100. (Suitable for perch paternoster hooks, large palmers for chub, etc., rough roach and dace hooks, etc.)

Ditto, medium, *4d.* per 100. (Ditto, ditto.)

Ditto, strong, *6d.* per 100, 8½ in. long.

Ditto, stout, *9d.* per 100, 10 in. long.

Regular, medium strength, 11½ in. long, *1s.* per 100.

Second Padron, next stouter to Regular, 11 in., *1s. 6d.* per 100.

Ditto, selected, 15 in., very choice, *4s.* per 100.

First Padron (a good lake gut, next stouter than Second Padron), 13 in., *2s. 6d.* per 100.

Maran (light salmon gut), 4*s.* per 100, 13 in. long.

Refina gut, a finest undrawn, 11 in., 1*s.* 6*d.* per 100. (Suitable for the best small flies.)

Of course there are many other makes which I have not taken up space with; but those enumerated are probably the best for the learner's purposes, When he gets familiar with the different kinds he will be able to form his judgment as to the most suitable. Recollect that all gut is bettered by polishing with the chamois leather, and that the roundest and most even gauge is the best criterion of quality and care in manufacture. I need not say that the buyer of gut can go pretty nearly as high as he likes. For example, a special brand sells at 50*s.* per 100, or 6*d.* a length. The longest gut of 1885 was 20 in. long. Goodness knows if there will be any at all this year; at the time of writing, the cholera is devastating Spain in a manner sufficiently alarming to induce the gut merchants to buy largely of gut wherever they can get it.

CHAPTER III.

RUNNING LINES AND THEIR DRESSINGS—REELS AND THEIR FITTINGS.

AVING thus given pretty full information in respect of what may be called the raw *material* of fishing tackle—viz., hooks, knots, gut, hair, and gimp—I think it is time to rise a step higher, and refer to the running or rod lines in use, with their dressings and preparation. Now, first, let me say, that no one without special machinery and skilled labour of a most expensive kind, can hope to compete with the great line-making centres, Nottingham, Manchester, and Redditch. Nottingham is, *par excellence*, the home of silk line-makers; and when you can go to Walter Wells of that city, or to Martin, 4, Northern Buildings, Newark-on-Trent, and get a beautiful eight plait (undressed) line for about three farthings a yard, retail, it is patent to all that to endeavour to make one yourself with a profit would be sheer madness. This is one of the exceptions against making your own tackle, to which I referred at the commencement of this work. The Twine and Cotton Spinning Company at Manchester, also, have made some splendid lines out of cotton—"cheap enough to tie dogs up with," as an old friend of mine says, and each one, however, fine and strong enough to "drag a barge;" and at Redditch there are also line-makers. Then, again,

the American raw silk lines—made of unboiled silk—are remarkable for their cheapness and durability; and some of the foreign exhibitors at the Fisheries' Exhibition showed lines of remarkable strength, if not of superior finish.

My advice to the amateur tackle-maker therefore emphatically is: Buy your *undressed* lines from Nottingham or Newark (mention my name if you choose), and dress them yourself. Not because the makers in question cannot make a good dressing, but because a well-dressed line is much more expensive if you desire to *buy* it, and because you can save by doing it at home. Of course, the utility of dressing a line consists in the undoubted fact that it will last nearly four times as long as one that is undressed, and the convenience for throwing out of a dressed line is far and away greater than in the other. The first of the following recipes is the invention of Dr. Emil Weeger, President of the First Moravian Piscatorial Society, and his description of it, together with some valuable hints on the preserving of lines, were published in the *Fishing Gazette* some months ago. With many apologies to my friend, its Editor, I condense what is there so ably said. The mixture is simply one of pure resin and solid paraffin, which Mr. King, of 1, New Street, Commercial Road, has very kindly offered to sell pure at low rates, and the Doctor goes on to state, "This mixture gives the lines a pleasant flexibility, united with a certain degree of stiffness or firmness which for most purposes is extremely advantageous, and which can be increased or lessened *ad libitum* by adding more or less of the resin. Twisted fishing lines, cord or whipcord, lose the faculty of kinking, or curling, if dressed

with it. The proportion which I have found to answer best, is four parts by weight of paraffin and one part of resin for summer time, and five parts of paraffin and one part of resin for winter time, because in cold weather the dressing is a trifle firmer. Now, to dress lines proceed as follows: Take four or five parts of the paraffin, put in an iron pot or vessel and dissolve it over a gentle fire, then take one part of resin, put it in the melted paraffin and stir till the resin is dissolved also. In case some impurities which the resin sometimes contains should be visible on the bottom of the vessel, take another pot and pour the mixture into it, taking care to leave the impurities behind. After a little cooling, the mixture is fit for use if you mean to dress a coloured line—a line made of light green, or fawn, or otherwise coloured silk.

"If you want to dress a white or raw silk line, and you wish to give it colour—perhaps a green or a brown one—take some green or brown paint which you can get at any oilman's, and mix according to your fancy. I like a green colour with a brownish hue, and for that purpose I mix with the dissolved paraffin a compound of one part brown paint and one part green, in the following proportion: To four or five parts paraffin and one part resin, I add the above-mentioned finely pulverized paint. Then take your line, be sure that it is perfectly dry and cleansed of all snarls and knots, wind it up on a spool, or if you have none at hand make a coil, immerse it in the liquid and now somewhat cooled dressing, and cover the pot with a wooden lid which has a small hole in the centre, after having run through the hole the top end of the line.

"Then take a piece of wet sponge or wet linen,

hold it in one of your hands which is resting on the lid, put the end of the line between the wet linen or sponge, and with the other draw the line not too slowly through it, pressing the line gently, and thus stripping off the superfluous dressing, put the dressed line on the table or on the floor. This latter manipulation can be done much better and with greater comfort by the aid of a fixed cylinder about eight inches in diameter, with a handle, by which you wind the line from the left hand.

"Then, when, in the short time of a few minutes, the dressing on the line is quite cool and firm, stretch the line well. Keep it tight somehow or other, and give it a polish by rubbing it well with wet linen. Finally, to give the line not only a beautiful enamel-like appearance, but also to make it more smooth, rub it well with finely pulverized Venetian talc, or for want of that, with very fine pulverized tufa (pumice) stone, commonly used by the wall-paper makers."

The great merit of this dressing consists in the line becoming almost exempt from "kinking," and I repeat that I deem it *the* best dressing ever invented.

It is possible, however, that this highly polished surface might not be liked by some, and to these then I offer the following recipes :—

1. Equal parts copal varnish and boiled oil (linseed). Soak the line till well soaked, then stretch across a dry room and remove the superfluous dressing with a piece of dry sponge or rag. This takes some time to dry and harden. Some use gold size instead of the varnish ; one-third of the size to two-thirds of oil.

2. One tablespoonful boiled oil, beeswax and resin, pieces about the size of a walnut, pulverize the resin

and cut the wax into thin slices; put them together in a jam-pot and this in boiling water till dissolved, mix with a piece of wood, put the line in when the mixture is warm. Hang it up to dry, and clear superfluous dressing from it as indicated in Recipe 1.

3. Boiled linseed oil one pint, beeswax quarter pound, melt in jam-pot in boiling water, put line in while mixture is hot. Stretch, clear of superfluous dressing, and dry as before directed.

4. Quarter pint of boiled linseed oil, beeswax as large as a filbert, Burgundy pitch as large as a walnut, rather more than a teaspoonful of copal varnish. Soak in mixture when warm, clear, stretch, and dry.

5. This is a well recommended dressing. After the line is quite dry from the preceding dressing, take it and immerse in gold size, stretch it swiftly, and cleanse it with rag or sponge, let it dry, dip it again in gold size, and dry it again. When it is thoroughly hard and dry, it must be steeped in an india-rubber solution, which is thus made: Take a flask of salad or olive oil, and shred india-rubber white as you can get it, as finely as possible, and place it in the flask. Put the flask in warm water, and this in the oven, so arranged that it does not quite boil for a week, or until the india-rubber is dissolved. Then steep the line in this solution, and having cleaned and stretched it in a dry warm room, let it dry, taking care not to leave it in that position till it is quite hard. This is a complicated recipe and a troublesome one, but I have found the line dressed with it is practically indestructible.

6. Half a gill of oak varnish, one gill of boiled oil. Steep and dry, and then dip again and repeat the cleaning and drying.

7. Half-pint boiled oil, three-quarters wineglassful copal varnish, half wineglassful of gold size. Mix in a jam or gallipot. Let the line stay in the mixture a couple of days, then stretch and dry, and again soak the line in the mixture, stretching and drying as before.

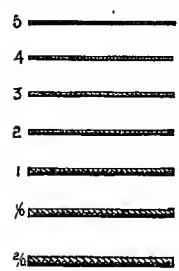


Fig. 65.—Gauges of best Eight-plait Silk Lines.

8. White india-rubber in chips, two ounces; half-pint spirits of wine. Stretch the line and dry as before.

Fig. 65 indicates the gauges of the best eight-plait silk lines made at Redditch (Messrs. Allcock's). It is here given because it gives an exact idea of the sizes in general use.

Reels and their Fittings.—After referring thus fully to lines which are designed to be carried on the reels and winches attached to the rod, it now seems fitting to refer at some length to the reels and their fittings now in general use. It is proper to state that reel and winch are not convertible terms; the former, referring exclusively to such contrivances for winding in the line as are made of substances other than metal, such, for example, as wood, ebonite, vulcanite, etc. The winch, on the other hand, is generally composed of metal. Sometimes a compound winch is put together, such as some of the more expensive salmon reels; but the very price is a prohibitory one to all but those who have more money than they know what to do with.

The reel is seldom made at home; but where the reader is in possession of a good lathe, I really don't see where the great difficulty lies in making it. Fig. 66 shows the kind in common use; it is true its cost

(from 3*s*. to 5*s*.) does not perhaps justify the time expended and trouble taken by the unskilled amateur, whose tools are perhaps far from suitable, yet it *can* of course be made, as I have said, if so desired. A indicates the outer plate, which should be of thoroughly seasoned Honduras mahogany. This and the barrel, B, are usually turned together, as well as a sort of false side which fits into the outer plate, C, and is flush with it on the inner side. Of course, it is understood that this false side is made as thin as it is possible, consistently with strength. These two parts of the reel being manufactured, the brass nut next demands attention. D indicates a brass cross which is carried down and on to a plate at E, where it is riveted. This plate is, of course, intended to be attached either by means of a rivet or by soldering. The nut shown at D terminates a shaft of steel which passes through the plate, C, through D and A, and in turn terminates in a nut which is detachable for the purpose of clearing any fouling of the line. The handles are, as represented, cone shaped, and either of some hard wood or bone, preferably the latter.

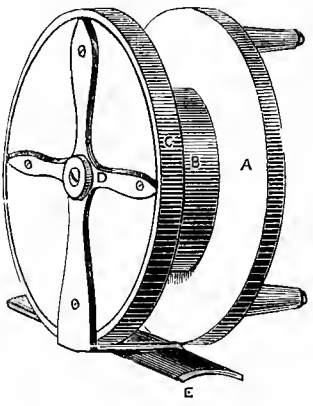


Fig. 66.—Sketch of Reel in Common Use.

Fig. 67 exhibits another kind of line winder termed a "multiplying" winch. The outer box at C contains two sets of cogs. The outer is large, and the other

just the size of the shaft on which the line is intended to be wound. D indicates a little stud, so arranged as to throw the cogs out of gear so far as multiplying is concerned. E is a winch attachment which has found favour in high quarters, because of its easiness of attachment. Of course it has one very good quality, it can be placed on comparatively any rod. There is only one other arrangement in existence which permits of that desideratum, and that I shall presently describe. The advantage of the "multiplier," of course, is that which consists in being able to reel up so quickly in comparison with other styles of reels; and this is no mean benefit when Piscator is doing battle with some gallant six-pound trout, or lordly *Salmo Salar*. At such time every aid is useful, as every fisherman knows.

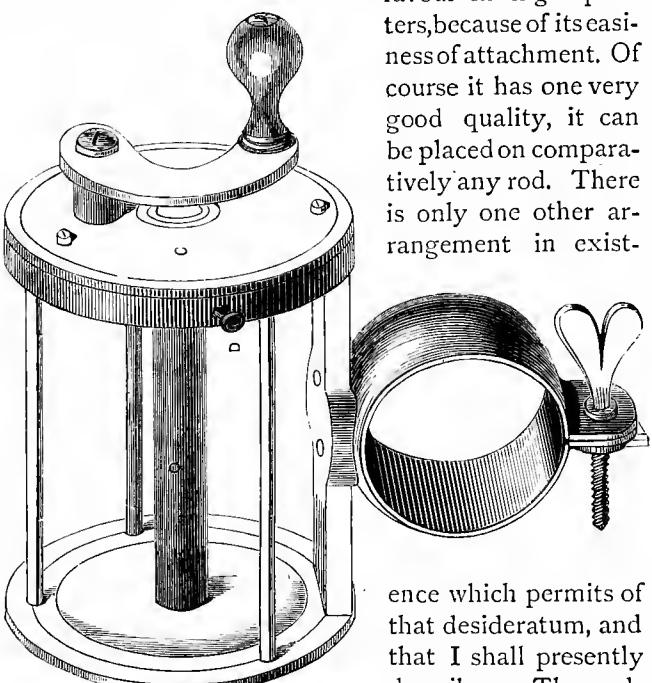


Fig. 67.—Reel known as "Multiplying" Winch.

Fig. 68 similarly shows a very useful device which can be fitted to any winch. It is a well-known fact amongst sportsmen that nothing is so unfortunate in travelling as the handles of your reels or winches. The device on the handle of this winch therefore is for the purpose of protecting the otherwise easily broken projection. The drawing exhibits half the reel to save space, and the handle is made to fold down on the pin at A, the head of which works stiffly in the handle. I chiefly refer to this that the reader may be *au fait* of these devices, scarcely with the hope that he will be able to utilize them in his amateur manufacture of tackle.

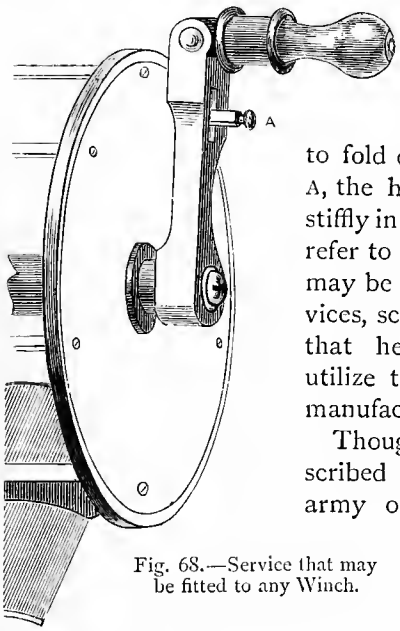


Fig. 68.—Service that may be fitted to any Winch.

Though the two reels described are typical of a vast army of others, it cannot be said that they are absolutely the best forms that can be employed; and other examples, the result of ingenuity and much expenditure, are worthy of a place, if only to inform the amateur of the class of thing which moneyed sportsmen buy and use. For example, the greatest, and as far as I know latest, improvement in the ordinary wooden reel is shown at Fig. 69. Now this reel, or winch, really must be seen to be entirely appre-

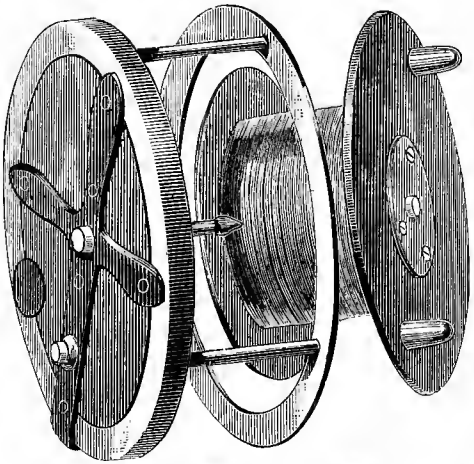


Fig. 69.—Slater's Modern Spring Winch.

ciated. It runs lighter than the old wooden winch because its bearing is a hard steel point, jewelled in agate, or a block of hard steel. Then it is taken apart instantly by the releasing of a spring immediately under the boss on the cross bars at the side, and a check can be put on by another movement of the same boss. The entire winch is the invention of Mr. Slater, of Newark-on-Trent, and it is in my opinion, for all "coarse" fishing, the very best reel extant—for fly fishing its size, except for

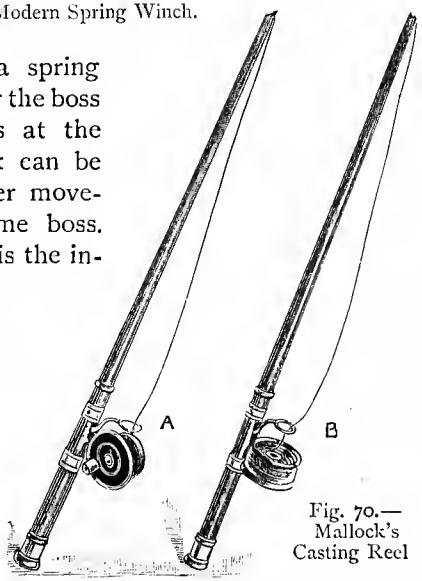


Fig. 70.—Mallock's Casting Reel

Salmon, is rather against it. Still a smaller size might be made even for that purpose that would answer admirably.

The chief excellency of this reel is, however, in its magnificently free running action, which enables the fisherman to throw from it without the least difficulty. On this point it is beaten, however, by the new winch of Mr. Mallock, of Perth, which is specially con-

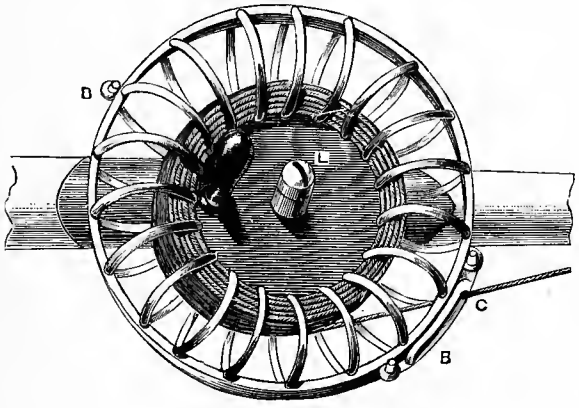


Fig. 71.—The Follet Winch.

structed for long casting. Fig. 70 shows it in two positions. The reel consists of a barrel on which the line is wound, of a slightly sloping figure; and the line is reeled up as shown at A. When a cast is to be made, the reel is turned round to the position shown at B; and in the act of casting the line unwinds from the sloping barrel, which is of polished brass, without let or hindrance. Mr. Mallock is one of the best casters of a line in the world, whether for salmon or other fish; and he asserts that this reel allows of a

longer cast than any other. Its construction is not difficult when you have once seen it, though, as it is patented, you must be careful what you are about in making it.

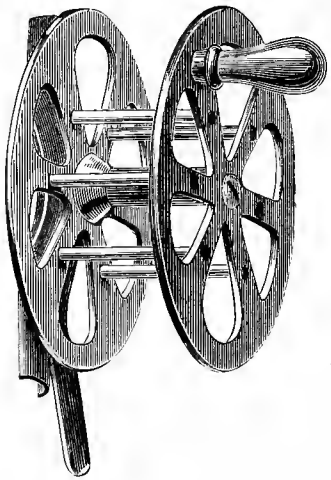


Fig. 72.—Improved Nickel Reel.

The Follet winch (Fig. 71) is of American make, and presents several useful points which recommend it to the reader. It is made in two parts, and can be stamped out of metal. These two parts are held together by the screw at L, which also serves as a tension screw to regulate its freedom in running. B B shows two additional rings and bolts, which hold the edges together in such a way that the line runs freely at C.

Now as to the useful points. First, it is very light; second, it is very free running, and cannot get out of gear; and third, it allows of the line drying on the reel. This is important, for there are many instances where the line is left inadvertently on the reel and allowed to dry in that position, and, on its being again used, found rotten, and fit only to be cast away. The large barrel also helps in reeling up the line, so that its speed in this direction nearly equals that of a multiplier with its ordinarily small axis.

The improved reel, figured at Fig. 72, is, if anything, an improvement on the foregoing. Its sim-

plicity of structure should recommend it to the amateur mechanic, as being easily made. The drag at A consists of a metal spring only, and is useful to prevent over-running, but is not indispensably necessary. The handle ought to be of smaller make and conical, so that the line does not catch. It is advisable to paint the reel for actual use. A bright star-like reel is by no means conducive to sport, though the appearance is certainly more taking to the buyer. The less the fish see of the angler or his weapons the better.

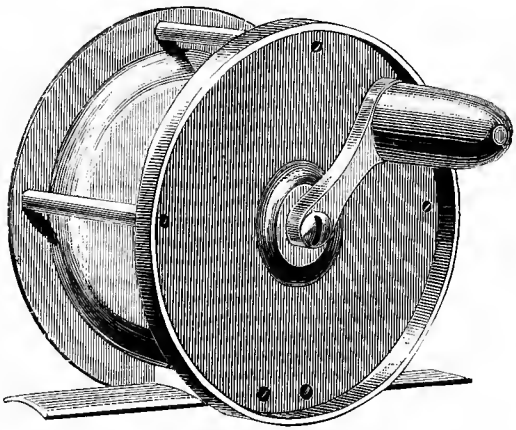


Fig. 73.—Mills' Patent Winch.

I have drawn Fig. 73 exclusively to show the reel plate and the position of the handle on it. It will be seen that the latter is surrounded as it passes round by a rim of metal, which prevents the line from getting round the axle when one is fishing on windy days. This is an extremely valuable feature, and the

idea is very simple and as such to be recommended. The principle is applied to the click winch, Fig. 74. This implement possesses a check movement which the indicator at A regulates; you have but to set this to check or multiply, or throw the gear out altogether, as you wish.

Probably the most esteemed of all appliances for

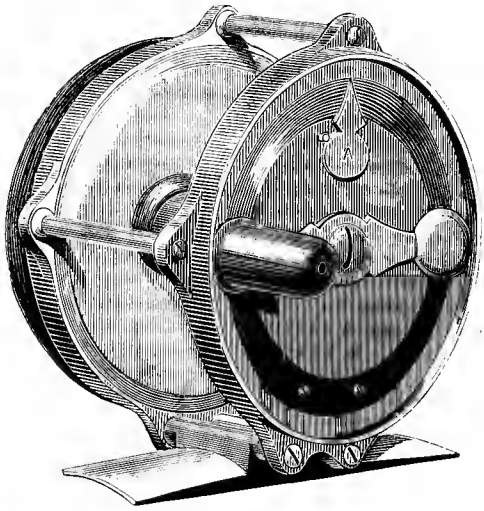


Fig. 74.—Click Winch.

reeling in the angler's line (in America) is the winch, Fig. 75, known as Abbey & Imbrie's patent. As a free running,—you can throw from it without uncoiling,—quadruple multiplier, I can say it is a piece of marvellous workmanship; and were it not for the handle standing out in so ugly a way from the plate, it would be a perfect fly-fisherman's appliance. The compensated handle, however, is a necessary evil in

this description of reel when it is revolving at a high rate, or the bearings, as may be supposed, would not long remain true.

In Fig. 76 we have a section of one of these reels showing the steel bearings which produce such little friction. The compensating steel pivot at H H needs only tightening from time to time as the reel wears

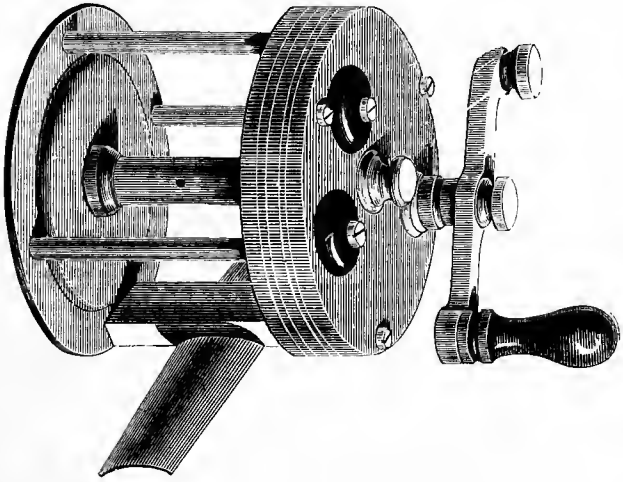


Fig. 75.—Abbey & Imbrie's Patent Quadruple Winch.

and can be so regulated as to run with infinite ease or quite stiffly, as occasion requires. This winch is a double multiplier, and could be constructed from the drawing—which is exact size of original—without great difficulty.

It is obvious from the foregoing that the plate at E, Fig. 66 (p. 59), is the part intended to be attached to the rod. This attachment was ordinarily by means of two bands of metal placed on the butt of the rod—

one fixed, the other sliding up and down as occasion required. This was at best but suitable to those reels that fitted ; but as makers, owing to the unavoidably different sizes of their reels, could not guarantee that without direct reference to the rod—the difficulty was for a long time looked on as insuperable, until that shown in Fig. 67 (p. 60) came into vogue.

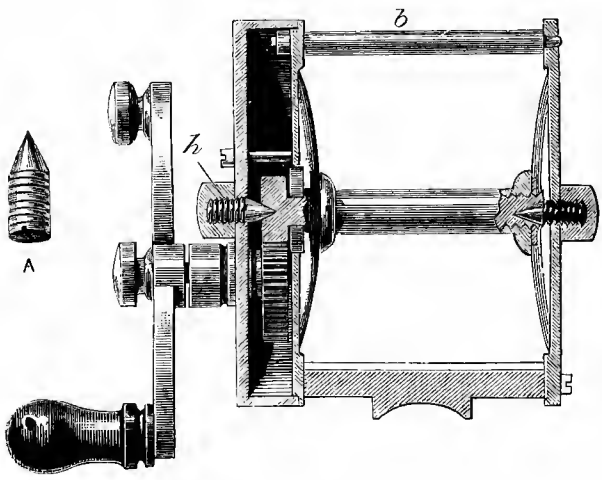


Fig. 76.—Section of Abbey & Imbrie's Patent Quadruple Winch.
A, Steel Pivot.

Some two or three years ago, Messrs. Hardy, Bros., of Alnwick, invented a most ingenious remedy, and it was soon after purchased by Messrs. Allcock, in whose hands it still remains. In this arrangement, Fig. 77, A, A are grooves to hold the plate of the reel ; B is the reel-plate stop ; C is the locking bolt. The reel-plate is simply slid under the grooves A, A towards B, till the bolt C flies up in its place. This bolt, C

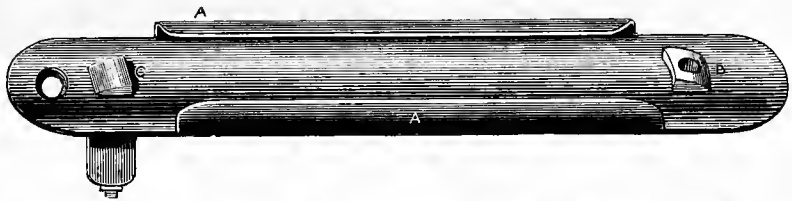


Fig. 77.—Hardy's Patent Winch Fittings.

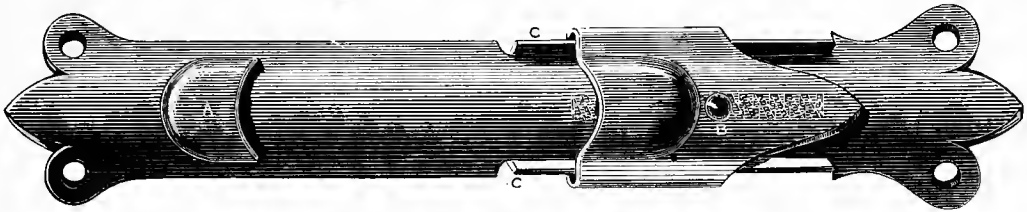


Fig. 78.—Further Improvement in Winch Fittings.

Fig. 79.—Ordinary Nickel Fittings of a Leonard Split Cane Rod.

holds a coiled spring which enables the angler to press it down level with the fitting.

A further improvement has been made, which enables the fitting to take a winch not only of every width in its plate, but of any length—of course, within reason. I show this in Fig. 78. A is a fixed cap to hold one end of reel plate; B is a sliding cap to hold other end of ditto; C, C, two slides to carry sliding cap. The sliding cap is attached to a spiral spring as indicated; and this of course furnishes the necessary retaining power over the winch or reel plate. I do not think there can be much doubt that these fittings will be those of the near future on all rods, and it is because of this that I show them. In placing the winch, all one has to do is to pass the plate in at B and force B back sufficiently to allow of the entrance of the other end of the plate at A. The spring aforesaid then comes into action.

Fig. 79 shows the ordinary nickle fittings of a Leonard split cane rod. The necessary ferrules, rings, and other attachments for rods may be considered as part and parcel of the rod itself, and as such have received attention in a separate important chapter on Rods and Rod-making. The above are adjuncts which cannot be considered as part and parcel of the rod *per se*, though, of course, highly desirable.

CHAPTER IV.

TACKLE FOR THE CARP FAMILY.

ALL the "summer spawners" but eels, pike, perch, and ruff, are more or less members of the great *Cyprinidæ*, or carp family. Roach, dace, tench, carp, barbel, chub, all are of this latter category, and I purpose in this paper to briefly describe and tell my readers how to construct the present items of tackle necessary to their capture. Of course, a great many of the appliances are convertible, with such exceptions as will be pointed out. Difference of size and quality of material being only in existence in certain cases, I trust there will be nothing which, in light of the previous chapters, will be anything but lucid and plain.

First, then, I will refer to the *line for roach fishing*. *Par parenthèse*, let me at the onset say that this heading refers to the bottom line only. The rod and reel line is a separate matter, and should be of light and elegant make—sufficiently so in any case to be in proportion with the finest of gut. One word as to the gut before passing on. For a roach line, this must be of the finest and roundest, though of course this is not so absolutely necessary as for fly-lines.

Now of what does this line consist? Three yards of joined gut (so selected that it tapers towards the hook), with a float, split shot, and hook. As to the

hook, the size I prefer is No. 36, shown on page 25, Fig. 18, and it must be whipped on to a length of gut. To do this, carefully select the gut and roll it round your fingers into a hank about as large as half a crown, leaving one end out perhaps an inch and a half. When it is rolled it is not in your way. Take the free end, and either crush it for a short distance in your teeth, or burn off the end in a candle. This proceeding has the virtue of rendering the binding more secure. Now take the hook between the left finger and thumb, with the round of the bend between them, and place the gut under the shank up to opposite the barb; hold this tightly. You have previously waxed your silk, which is fine and strong, and you now take one end also between finger and thumb of the left hand, and commence and go on winding evenly and with steady tension from end to bend. You now, without removing finger and thumb, take one turn round the aforesaid finger, and, passing the gut through, form a single one of the cloven hitches, shown at Fig. 45. Draw this from the finger to the shank and pull tight, and you can now with safety add another. Clip off the loose end of silk, there must be no gut or other loose end showing, and your hook is whipped, as it is termed. Too much wax must not be used, as the varnish does not take well. The binding must now be touched sparingly with shellac varnish (dissolved shellac in spirits of wine, with a little gum benzoin added), and placed in the sun, or near a fire—not too close, of course.

You will, if you are wise, make a dozen or more roach lines at a sitting, and we will assume that a dozen hooks will therefore be tied. My plan is to take one evening for hook-tying, *pur et simple*, others

for float-making, line-tying, plummet-making, etc.; and if this is done it is curious how the mechanism of the hand seems to fall naturally to its task. In such case, a slender rack made of a thin rod of iron stretched between two uprights is very useful for the drying of the varnished hooks, because they can be arranged so as not to touch. This will be found especially useful when one is making jack and other tackle.

Supposing the hook dry, the next thing is to loop the other end of the gut. Now, if this is whipped and not tied, it will be found to be a rather ticklish job, and the learner will be some time before he can whip the loop with a certainty of exemption from accident in the shape of its being insecure, or the finish off coming undone, or the gut drawing. This latter, I need scarcely say, is an unpardonable fault in the tackle-maker. Better be coarse and strong than neat and weak. However, the left finger and thumb comes into play, and the operation is performed towards the loop, finishing off on *one* of the seams of gut. The finest of fly-tying silk is here indispensable. In fact, it may be said once and for all, that the strongest work is performed with very fine silk always. It takes longer, perhaps; but this quality and its neatness are recompenses.

If, on the other hand, this loop is tied,—and I frankly say that I prefer it tied,—it should be done so either with the loop given at Fig. 51, which I prefer for roach tackle, or that shown at Fig. 52. Soaking is, of course, necessary.

The next consideration is the line itself. This I prefer tied only; but the fashionable way is to tie with either Fig. 49, or Fig. 50, and whip the bare

ends for a short distance for greater security, when each strand of gut should be straight, and the rough ends always cut off quite free from the round part. It is a good plan to soak after tying the requisite length,—three yards,—and stretch the gut with a steady pull from a round hook let in your work-bench, and rub with chamois leather. Of course loops are tied at each end, either as at Fig. 51, page 37, or Fig. 52, page 39.

Fig. 80. Primitive form of Float.

These two preliminary processes—hook tying and gut line making—are the same for all fish, with the simple difference of size in hook, and shape and coarseness of gut. These will be adverted to as we go along.

The float is made in a great variety of shapes, and I shall digress here to speak on its amateur manufacture. Floats are also made of a great variety of materials, the chief of which, however, are cork, quill, reed, and wood. Fig. 80 shows the principle of the float in its most primitive form.

A is the barrel of cork, painted in two colours, as indicated by the line; B is a length of wood through its centre; C C, the rings of brass through which the line passes, to be retained in its place by the cap just above B.

Now this is the cheapest made, and I need scarcely tell any one with a taste for mechanical pursuits, how it is to be done. At Messrs. Allcock's factory at Redditch it is a pretty sight to see how all sorts and conditions of floats are manufactured. Literally thousands are turned out per week, and yet the

demand seems inexhaustible. With them the cork-cutter sits at his bench, and by his side you see a heap of square pieces of cork of all lengths and sizes, from that of the tiny dace float to the big jack, duck-egg-like appliance. True, he picks up each piece, and fixing it in the lathe with the rapidity of thought almost, he has applied a chisel-like tool, and the shavings run off in a shower. The barrel of the float is formed and pitched aside. Next, the cavities, unavoidable in nearly all cork, are filled up with putty, and when this is somewhat hardened the cork is again placed in a lathe, and as it is whirled round the surface is sand-papered smooth. Next it is bored, and the plug B, Fig. 80, fitted. Next the rings are added and whipped neatly in their places. Finally, the float is painted and varnished.

For home manufacture I have made use of good wine corks with advantage, boring them through with a cork borer, to be had of all chemical apparatus makers, and fitting two or more corks accurately one on the other, with a little stiff shellac varnish or Le Page's Carriage Glue between them, to render them firmer one with the other. With such a float as this I use a good stiff swan or goose quill as a plug. The cork can be cut with a sharp knife roughly into shape, and afterwards rasped with a sharp wood rasp more truly, and then sand-papered. After this it may be puttied, and the finishing touches added, as in Fig. 80.

A large quill of turkey, pelican, or swan, or even smaller ones of goose, are by no means bad roach floats, if made as follows: Take the quill and carefully scrape it to remove any attached skin; then remove the feathers right down to the quill. Just where this joins the quill there is a tender spot; and

if you pull the feather too roughly you will do away with its being waterproof; and the float is not of much value if not waterproof. Carefully, therefore, remove the feather, and take your whipping silk and bind this spot on the quill firmly and evenly, waxing the silk rather more than usual. Now apply the shellac varnish rather copiously, and let it dry; give it another coat, taking care that the former hardens ere the latter is applied. Now take a piece of fine copper, tin, or brass wire,—the latter for preference,—and wind it round a hair-pin or fine knitting-needle once or twice, turning the ends at right angles. You have thus a ring which is to be attached to the upper part of the float at about half an inch from its end, whip it firmly and varnish. Similarly attach another to the lower end. Now tip each end with a little sealing-wax varnish; red is usually employed, as being a conspicuous colour. This varnish is made with the best red sealing-wax broken into chips, in spirits of wine; let it stand in a warm place—not too warm, till required. Your roach float is now made.

In Fig. 81 are shown four floats which are exact representations of those found to be most useful in fishing for the so-called coarse fishes. A represents a cane and quill combination, the centre being of cane and the two ends of quill, and some hard wood or bone as terminals; B, C, and D are of cork, and are of the shape I prefer for all fishing operations requiring a float, as they are slight and so readily indicate a bite, and of sufficient length to be also very buoyant. Fig. 82 is also easily made, and quite as efficient as the more elaborate specimens. It consists of a quill,—swan, turkey, goose, or pelican,—at

the upper part, and a tapered plug of yellow deal at the lower. The diagram so fully explains itself that I hardly think more explanation is necessary. One thing in working quill should not be forgotten: hot water will always soften it and render it tough, and of course when it dries it will harden on the wooden plug, hence it should be soaked always before you begin to use it.

Sometimes,—to avoid the nuisance of having to undo your bottom line from the running line, in order to change the float, should it be too heavy,—another dodge is resorted to, which, however, is only applicable to cork floats. The cork is split through the barrel, and the line is drawn into this until it reaches the centre core, it is then drawn round and away from the slip, so that it cannot return out of the latter unless moved to it again. This is a capital invention for jack floats, and is shown in Fig. 83. The top of this float is often coated with a luminous compound for night fishing. Fig. 84 also shows an arrangement for retaining float on line in place of rings and "caps" of quill.

I am also in favour of what is termed a self-cocking float for certain sorts of fishing, especially that for carp and roach. This is simply formed by placing a cylindrical piece of lead, easily cut from a hank of lead wire, into the lower part of the quill, and whipping neatly round it. The binding of the lower ring will do capitally for this purpose indeed. Of course, the weight is proportioned to the natural buoyancy of the quill, and the float ought not to sink lower than will leave out quite an inch in a small and an inch and a half in a large float. This self-cocking arrangement obviates the use of split shot on the line

—to which we must get back by the bye. It is chiefly suitable in still water, such as lakes and canals where the fish are exceptionally shy.

Split shots, Fig. 85, are used of all sizes, and are split, I need scarcely say, with a special machine like a pair of tweezers. These can be purchased from a tackle maker; and I need further say but little about them, as it is scarcely likely that the amateur will split his own shot when they are so ridiculously cheap; though he can if he will, by sinking a small hole the size of half the shot in a block of hard wood and using his jack-knife, cutting through the shot down to the wood.

The shot should be pressed on our roach line by means of a pair of ordinary tweezers. If expense is an object, the teeth will do as well—provided, of course, you have some in front. The shots ought not to be nearer than a foot from the hook; if the hook gut is longer than a foot, a small one may be placed on it. I always use No. 4 shot myself. A piece of lead wire is wound round the line by some anglers, and they claim that the gut is then not injured by compression, and that it can be easily taken off This is a good argument; but is it not likely that the fish will sooner see the wire than the shots?

You have now finished your roach line. The same sort of thing with a lighter float will do for dace and bleak. For tench and carp even lighter floats are used (Figs. 81 and 82), and finer gut; the hook somewhat larger. For chub, a small triangle hook is often used instead of the single.

One or two little appliances are yet necessary, to complete the tackle of the roach, dace, bleak, tench, and carp fisher. Having made his lines, a winder is

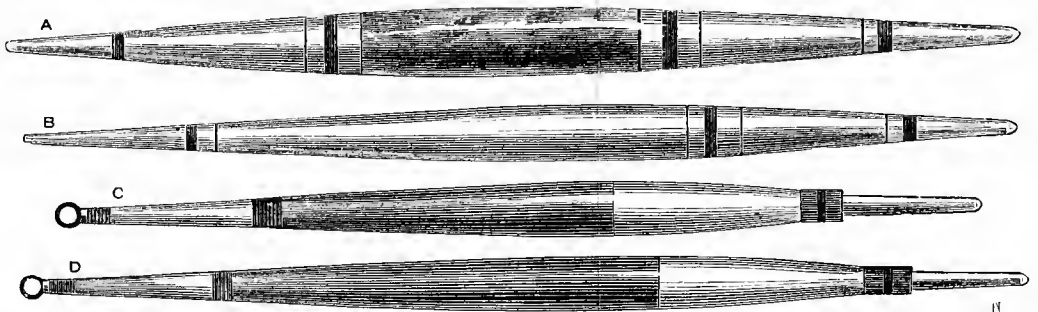


Fig. 81.—Four Varieties of Floats useful in Fishing for Coarse Fish.

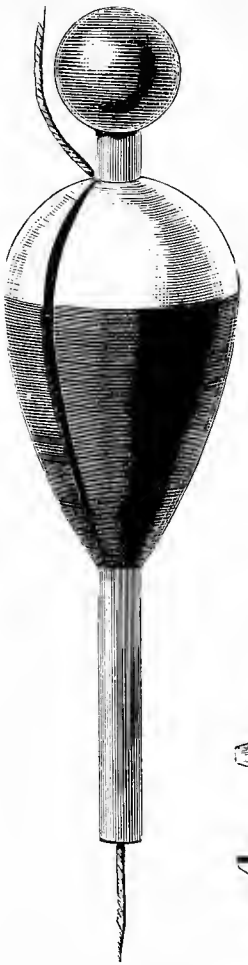


Fig. 83.—The Adirondack Float.

Fig. 85.—Split Shots.

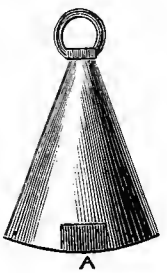


Fig. 89.—Alternative Form of Lead.

Fig. 88.—Lead.

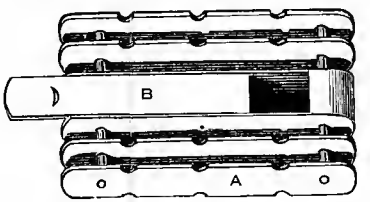


Fig. 87.—Winder for Line for Roach Tackle, etc.

Fig. 82.—Quill and Wood Float.

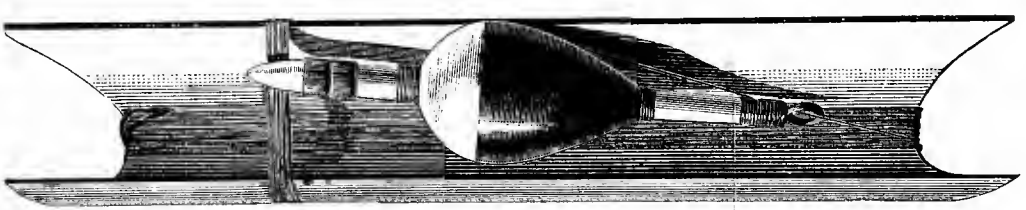


Fig. 86.—Line and Winder.

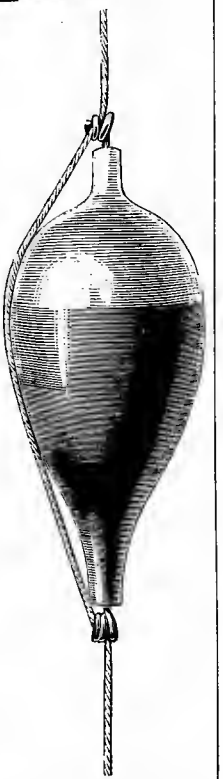


Fig. 84.—Arrangement for Retaining Float on Line.

Folding Plate No. 1, containing Figs. 81–89, to face page 78.

de rigueur (as Fig. 86), whereon he may place his tackle when not in use. This, of course, varies from the half section of a bamboo cane (Fig. 86) to an ordinary piece of board simply notched out. Fig. 87, however, is *the* thing, and the following is a description: A, A, A, A, are slips of thin wood, held at distances of half an inch or more by a brass wire; B is the lid made to slip off a box in the centre of the winder into which the brass wires are fixed. At intervals, up the sides of the winder on the slips A notches are cut. The hook of the line is slipped on the wire of either partition, and the line is then wound round and round until its end loop is secured in one of the notches. Of course it is obvious that this protects the angler from the hook, and the line from entanglement. The material is commonly boxwood.

The plummet is a necessary adjunct for roach, etc., fishing. Figs. 88 and 89 show two patterns, both of lead. At A in each a core of cork is placed, and there should be no difficulty in fitting it, inasmuch as that the cork can be softened very much by immersing in a little hot water. Both are of otherwise solid lead, with a brass loop let in, one square and the other rounded and pyramidal. I make a mould of chalk for my plummets, and if they come out rough they are easily filed into shape. They should be painted a dullish green, and never be left bright, unless you want your hook and plummet to disappear some day from off the gut by reason of the rush and bite of a voracious perch or pike. I have known a pike to snap off my plummet before now because of its brightness.

Barbel are certainly taken with the float and line,

but the whole arrangement is almost double in size and general coarseness. There is a very favourite method of taking these fish with some fishermen, and that is by an arrangement termed a "leger," Fig. 90. The bottom trace, which is used for this, consists of a yard of fairly stout gut, joined as before directed, and between the last two links a piece of gimp is joined by whipping. Now, at the end of this gimp farthest from the hook, a large split or drilled shot is placed. A bullet or "leger" is slipped on from the shortest end and is stayed by the shot. This leger is attached to the rod-line, and baited with a worm and thrown out, so that the whole arrangement lies on the bottom. When the fish bites, it of course jogs the line without much moving the leger, because this being drilled allows of the free passage of the line. It is a very deadly piece of tackle.

There are one or two miscellaneous articles I might as well enumerate here as being useful, and, indeed, some of them indispensable, to the angler for *all* fish, not less than those to which I have referred. The first of these is a landing-net. I need not refer particularly to the net, except to say that it should be dressed and thoroughly dried, and its mesh not less than that of Fig. 91. The handle and ring for the net are, however, distinctly within the province of the amateur workman. The handle may be of any light or tough wood, and the iron of it, being home-made, may be of hoop iron. I find no difficulty in getting a ring of, say, 12 inches of $\frac{5}{8}$-inch iron or steel, welded together into a spike for fastening in the handle for a few pence; and with an iron collar to prevent splitting, he must be a very poor workman who cannot contrive one. The net is laced on with two half-

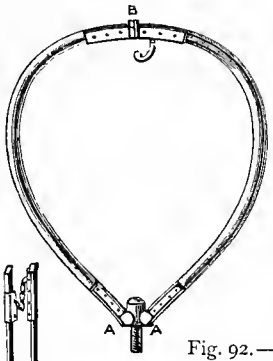


Fig. 92.—Collapsible Whalebone Ring for Landing Net.

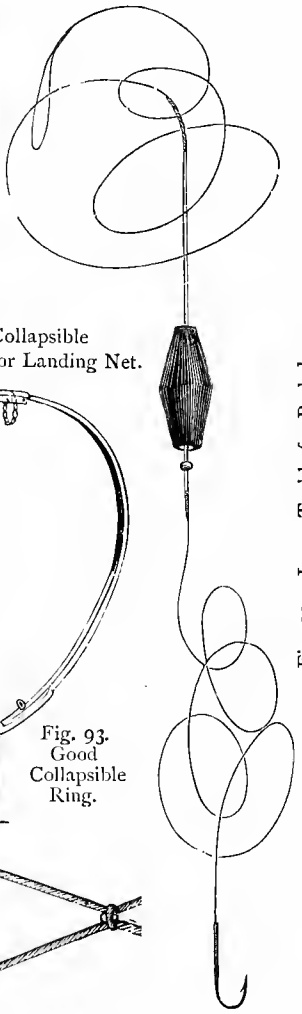


Fig. 90.—Leger Tackle for Barbel.

Fig. 93. Good Collapsible Ring.

Fig. 94.—Another Form of Ring.

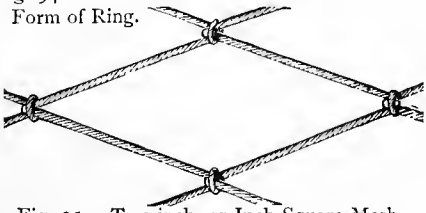


Fig. 91.—Two-inch, or Inch Square Mesh.

hitches to each mesh, and should be carefully dried after every using. Fig. 92 shows an improved collapsible whalebone ring, which is in request by all the "swell" anglers, owing to its portability and general handiness. A and A indicate two joints, which, when extended as now shown, are rigid outwards, but on the release of the bolt at B, which is easily done by means of the trigger shown, collapse inwardly, until the whole affair can be folded up in an umbrella case. This fits, by means of a screw with broad thread, in a suitable handle. Figs. 93, 94, and 95 also exhibit good devices.

In Fig. 96 we have a new and wonderfully convenient arrangement which may thus be described. A and B are the ring and handle before attachment. A can be carried inside B, and with the cap E screwed on, no more portable affair can be conceived. C shows the ring *in situ*. At D we have the means of adjustment. The ends *a*, *a*, of A are bored as shown, and one is slipped in on to *b*, then the other end is brought round and slipped on the other peg *b*, and the spring of the steel keeps the whole affair in its place. Of course the net is slipped on *a*, *a*, before arrangement.

In Fig. 97 a rather different style of net, but not the less portable, is shown. The handle and net iron are in two pieces, and A is pushed up when the net is on it with a movement like the opening of an umbrella. A thumb-screw at B fixes it rigidly. On the whole, I am inclined to pronounce these two devices the best I have seen.

Fig. 98 represents, a good kind of collapsible handle. The bolt at A locks this handle when extended; though, by pressure upon it, it can instantly be released. The advantage of a handle which can be

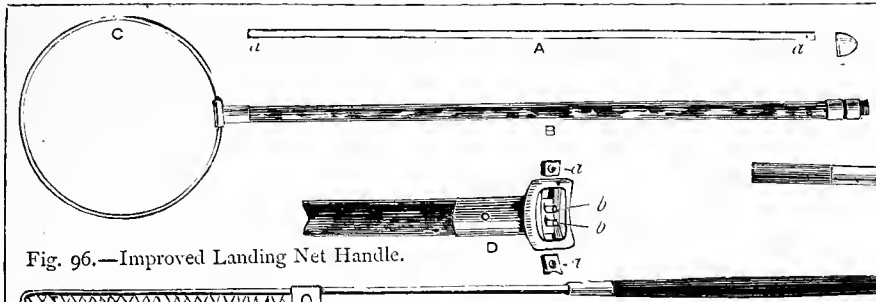


Fig. 96.—Improved Landing Net Handle.

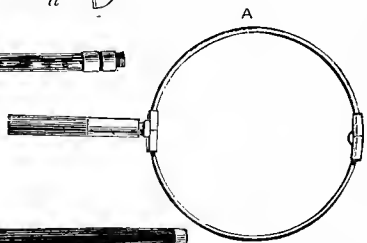


Fig. 95.—Another Collapsible Ring. A. Open. B. Closed.

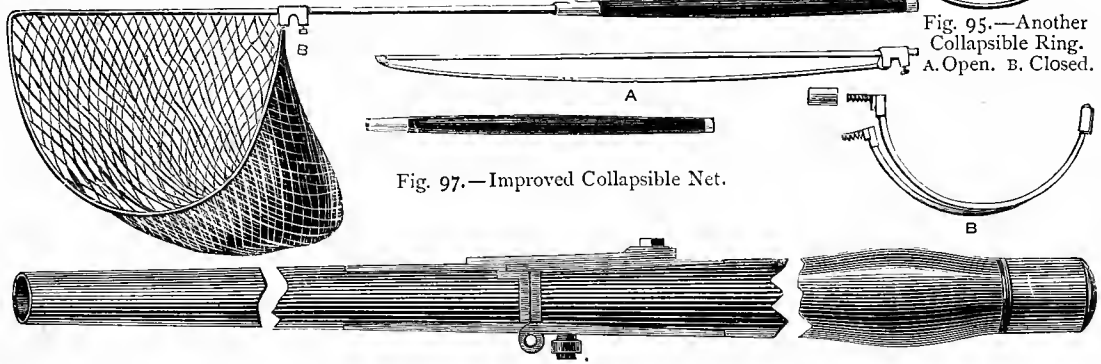


Fig. 97.—Improved Collapsible Net.

Fig. 98.—Good Collapsible Handle for Landing Net.

extended or contracted at will when fishing, is obvious. The landing-net is used for the purpose of taking the fish out of the water when it has been exhausted by the angler; and it sometimes happens that it is practically impossible to reach the exhausted fish with a short-handled net. This handle can be taken in one hand and opened without aid from the other, and can be unlocked again in a similar manner.

Fig. 99 is what is termed a gaff and knife combined, and is very useful for salmon fishing, or even pike fishing, though not perhaps so much so in reference to the carp family. A gaff is a hook with barb, used to land fish in the place of a landing-net. The hook is thrust into the gills if possible, or into the belly of the fish; and it is thus lifted bodily out of the water. I introduce a drawing of this improved form of the gaff, because the knife thereto attached is so useful for cutting off a branch of a tree or weed in which the line may from time to time become imprisoned. It is an article also easily manufactured by any one possessing a forge. The barb is not absolutely necessary; in fact, I prefer the weapon without it. I need scarcely say the knife is a fixture, coming out only a short distance in excess of its position as shown in the illustration.

A clearing ring is also handy for the carp fisherman. This is a heavy ring of lead enclosed, but with the ends overlapping. When a weed is encountered it is easily slipped on the line and allowed to run down to the hook and on to the reed. Of course a string is attached. Almost any weed will yield to this; it is shown in Fig. 100; and it can be made by any one with very little trouble.

Fig. 101 represents the clearing ring usually sold in

the shops. It is made of lead, jointed at its lower part, as shown, and closes to in the upper half. A line is passed through the two holes shown in the engraving and held in the hand. This implement is certainly better in appearance than the rough-and-ready ring shown in Fig. 100, but it is an open question if it be really more useful.

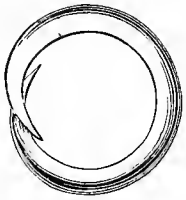


Fig. 100.—Clearing Ring for Carp Fishing.

How to Use the Tackle described in the foregoing pages may fitly occupy our attention for a little while, for I think all my readers will agree with me that "all work and no play makes Jack a dull boy" indeed.

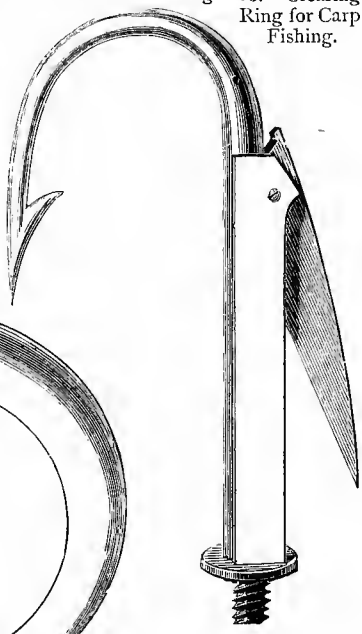


Fig. 99.—Gaff and Knife combined, for Salmon Fishing.

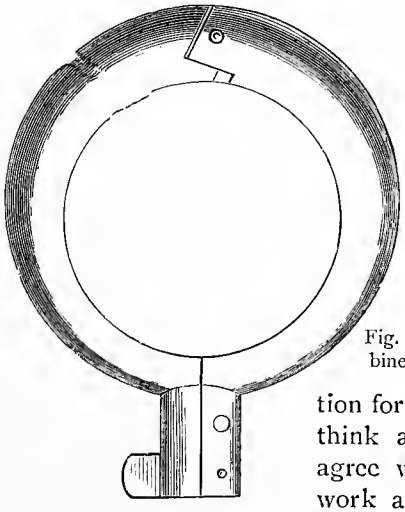


Fig. 101.—Clearing Ring.

And it is quite within the bounds of possibility that there are some who have followed me carefully who can make the tackle described—perhaps have done so by this time—and yet have but a hazy notion of how to use it. Besides, I have only given the fundamental principles underlying the making of appliances for our coarse fish, and not the minutiæ for each; and under the heading of this paragraph the omission may very well be supplied. Let it, however, be understood, that all tackles for the carp family are generally similar, and differ only in degree and proportion. Assuming that piscator has acquired a rod —not having yet arrived at the proficiency necessary to make one—we will begin with—

Fishing for Carp.—The tackle is a fine silk line, dressed with one of the dressings given, a winch—modern one preferable, fine gut line, made as described, quill float like Fig. 82, a few shots to cock it (Fig. 85), and a hook on fine gut (No. 7, Fig. 19). So much for the tackle.

Now as to the fish. You will find carp the wiliest of fresh-water fish—that's why I begin with him. If you pass the ordeal of catching a carp, you will have graduated in the angling virtue of patience, and be worthy of further developments. The fish is found in lakes, and but scarcely in rivers; and usually it feeds in the deeper parts of such ponds as contain it. Anyhow, it must be ground-baited for; and for this purpose bread, grains, greaves, potatoes, worms, gentles, and boiled wheat, are each and all excellent ground-baits, so they be fresh and in *no wise stale.* A place should be quietly baited for several early mornings, not too copiously, and then one morning, that on which you fish, should be missed. You can

use for hook-bait the finer parts of any of the ground-baits enumerated.

In doing this, be careful to cover the entire hook; and having first plumbed the depth with a plummet (see Figs. 88 and 89), let the bait be so distant from the float that it rests on the bottom. When you see the float move, pause just a few seconds, and then strike, not too sharply. Play your fish gently, or you will break the tackle.

Fishing for Roach.—The roach is an easier fish to capture, but requires quiet and unostentatious treatment, as befits its carp-like nature, or you will not be very successful. It is not within the province of this work to do more than give the barest outline of fish-catching, or I might fill a volume (as the late Mr. Greville Fennell has verily done in his "Book of the Roach") about this fish, so favoured by the humbler angler. Its haunts are moderately swift streams, near weeds, and gently-moving lagoons, whence sometimes many dozens can often be taken at a sitting. Ground-bait, of materials similar to those used for carp, is essential, and need be used only one night previously, or actually at the time of commencing to fish. The tackle should be similar to that used as above for carp, only a smaller hook is necessary. The bait should be similar also, and not allowed to rest on the ground, but be retained an inch from it. The least indication of a bite by the float should cause the angler to respond with a sharp but not violent strike.

Dace are fished for with similar baits and tackle—lighter if anything. Fly-fishing is pretty sport for dace.

Chub are taken by baiting with cheese, greaves, pith of bullock, or worms, using stouter tackle of the

same kind, and a No. 13 or 14 hook (Fig. 19). Chub frequent the shadows of overhanging osiers or bushes, and, if you keep well out of sight, are bold biters.

Barbel fishing is usually carried on from a boat, and the fish are mostly found in the deeper runs and eddies of the river. If float-fishing be indulged in, a float of large dimensions is necessary, and strong though not too stout gut. The leger (Fig. 90) is very much used by the ordinary bank fisherman; and the hook should be a No. 13 or 14 (Fig. 19). Bait with lob worm, ground-baiting some time previously with same.

Bream fishing is similar to that for barbel, only lighter tackle may be used. Baits similar.

Tench fishing is similar to carp fishing, but is best carried on at night after sunset. The fish is very fond of a red worm, or the tail of a lob-worm that has been well scoured in moss.

When fishing, the angler should always have with him the materials for binding on a hook or mending a rod. Let this be always borne in mind. A reel of silk and a piece of cobbler's wax take up but little room, and one never knows when they may become useful.

CHAPTER V.

BAITS FOR PIKE, SALMON TROUT, PERCH, AND EELS.

N commencing this chapter I am sensible that it is quite impossible for me to do justice to so vast a subject in so short a space as remains at my disposal. There are three methods in vogue for the capture of the pike; and the constant varieties of tackle which present themselves, according to the tackle-maker's fancy and the angler's whim—for the fish would seem but scantily consulted—in use for these three methods are bewildering in their number, and quite impossible to reproduce in their entirety here. I shall, however, seek to ground the amateur who has followed me so far in the manufacture of the chief appliances, and must leave his own observation and aptitude to do the rest. Spinning, trolling, and live-baiting are each and all practised by most jack fishers; and, as it is both necessary and useful to do so, I propose referring *seriatim* to them.

Spinning is looked upon as the most sportsman-like; and perhaps a greater variety of tackle is made for its pursuance than for any other form of angling, except fly-fishing. The word applies to the motion of the bait, which revolves or spins in its passage through the water, with a velocity proportioned to the perfection of its position on the hooks. One of

the simplest and best of these "flights," as they are termed, is shown at Fig. 102. A is a double hook, tied on gimp, of a gauge corresponding to the supposed size of fish sought to be caught; B is a triplet placed on a double gimp for extra security; and C exhibits the lip-hook, which is inserted in the mouth of the bait to keep it in its place. One word about lip-hooks generally: they are intended to slip on the gimp, or gut, by means of two loops attached, one at the bend and the other at the end of the shank. These loops are of gimp or of steel, and the latter are made with the hook. After insertion in the mouth of the bait, a twist is ordinarily taken round the bend to prevent slipping. A is intended to bend the bait's tail, which would be that of a dace, etc.

Fig. 103 shows another kind of flight, almost of the same make, but claimed by some to be superior. In this case A is looped on to the main gimp, and a triplet hook dangles behind. Another triplet is placed higher up on the gimp, and a lip-hook of the customary pattern is also employed.

Fig. 104 completes the trio of what I consider the best *unleaded* flights of spinning hooks made. I say unleaded, because in some of the others I give further on, you may see that the lead for sinking the bait in the water is contained in the bait, instead of being on the trace, as I shall presently explain. This tackle is perfectly simple, and consists of one single hook, and one triplet; the lip-hook is added, as a matter of course. It is dressed on stoutish gimp. Let me here refer for one moment to the whipping of hooks on gimp. Be careful that you withdraw a small length of the enwrapping wire, and overlap the forks of the triplets with a little of the fibre, bringing it down on the

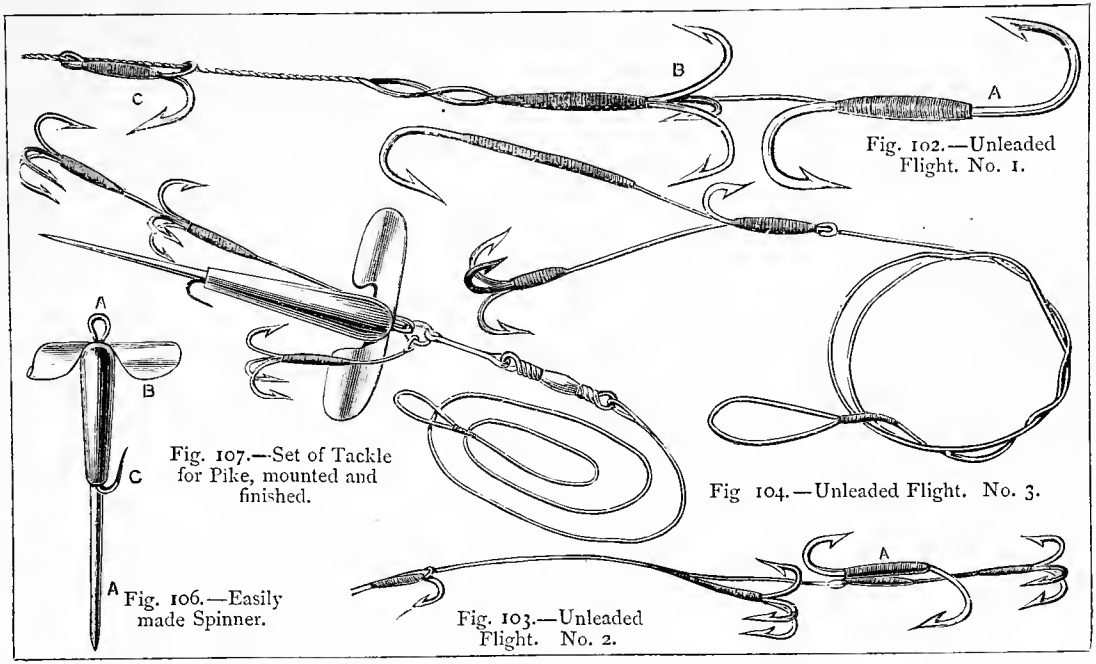


Fig. 102.—Unleaded Flight. No. 1.

Fig. 107.—Set of Tackle for Pike, mounted and finished.

Fig 104.—Unleaded Flight. No. 3.

Fig. 106.—Easily made Spinner.

Fig. 103.—Unleaded Flight. No. 2.

shank. This causes the whipping to be very secure, and gives a better finish if done with care.

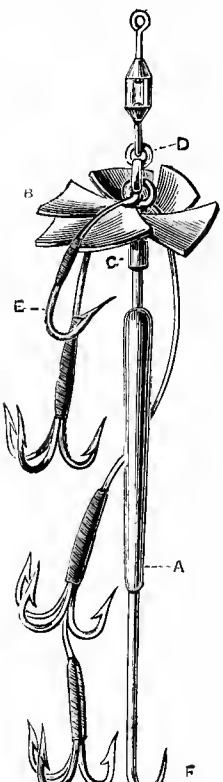


Fig. 105—"Fishing Gazette" Spinner.

In Fig. 105 we have a singular but very effective invention for the doing away with the bent tail and weighting the bait at the same time. To describe the weapon *in extenso*, it consists at A of a lead barrel through which a brass pin runs, terminating with a hook. This part can easily be made from an ordinary barrel lead, Fig. 126, and a large blanket pin. The part B consists of a disc of metal cut from the outer edge into equilateral flanges, six of them. They are bent in the shape shown to somewhat resemble a screw propeller, the action of which they imitate. The centre of this is bored to admit a piece of piping, which is fitted by soldering (see C); A terminates at the upper end in a ring, to which a swivel D is ringed. The lip-hook at E is attached with this ring, and this, with the three triplets on gimp depending from the other side, completes what has been named *The Fishing Gazette* Spinner. The pin, A, in baiting is thrust down the throat of the bait until its mouth arrives at C; the hook, F, keeps it in its place. The lip-hook is thrust in the back of the neck, and the

other hooks are disposed around the body. When the whole is drawn through the water the fans, B, cause very rapid revolutions, and the result is a most attractive spin. It is a very creditable invention, of which Mr. Marston, of *The Fishing Gazette*, might well be proud.

An arrangement designed for the same purpose, is shown in Fig. 106 (p. 91).

This may be easily made if one can braze or solder pretty fairly. A is a pin with a loop at the head; C represents a hook which is pushed in together with the pin through the barrel lead (these leads can, of course, be readily purchased and adapted to their purpose); B exhibits the flange, which is cut out from a piece of sheet brass, and carefully inclined and curled either way, as shown. Curiously (through a mistake in the shading) the flange in Fig. 107 shows the exact flat pattern. This flange is then fitted into the lead either by sawing it down about a quarter of an inch, or it is fitted to the pin A, previously to anything being done at all. Perhaps this is the better way, but it involves soldering, and the latter process does not, as the lead itself can be closed sufficiently tight to obviate its slipping out. If the upper part of the flange close to the ring be beaten thin, the closure of the lead is additionally secure. Fig. 107 shows the mounting in its entirety. Of course, all the tackles here shown can be varied as to size, as occasion requires, though these represented are the ordinary dimensions.

The foregoing are the most difficult of the spinning tackles in ordinary use, and yet are by no means difficult to make. Those of the artificial baits to which I am about to refer are, in some cases, the work

of skilled metal-workers, and cannot, of course, be made without great expense for adequate machinery. There are very many which are not here figured that can be manufactured by the amateur; and in none of them, except the most fantastic, is there real difficulty for those who are disposed to go to the expense. In the latter case, however, the game is never worth the candle, for some simpler arrangement will probably be found better in actual practice.

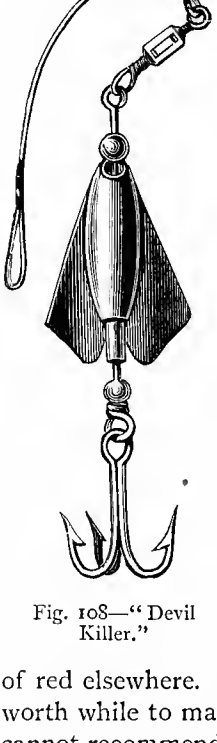


Fig. 108—"Devil Killer."

Fig. 108 is a metal artificial bait, which, twenty years ago, was known to me as the "devil killer," probably in allusion to its remarkable killing powers. It is formed by a barrel of bright metal, with flanges on each side, and is even now ranked amongst the good artificial baits of these latter days. Obviously it is quite impracticable to make without proper machinery.

Fig. 109 is a very attractive bait, made entirely of nickle, and painted with red fins and splashes of red elsewhere. This also is one of those it is not worth while to make yourself; and, as a fisherman, I cannot recommend you to buy it.

Fig. 110 is not intended for fresh-water really, but is nevertheless a killer where pike abound. A represents a hook, on the shank of which is a large drilled shot. Over this is drawn a piece of red india-rubber

tubing, represented at C; B, at the extreme shank end represents flanges of metal, whilst a swivel at the extremity completes the bait. For some kinds of sea-fishing it is very effective, for there is an extremely worm-like appearance about it when rushing and revolving through the water.

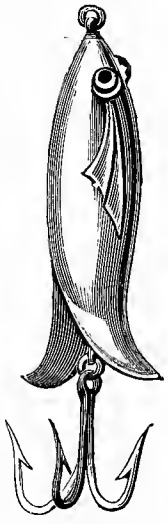


Fig. 109.—Another Form of Spinning Bait.

Fig. 110. India-rubber Spinning Bait for Pike.

Fig. 111 shows an American bait, which on its arrival here did great deeds of "derring-do" amongst the pike. It consists at A of a spoon, either of bright bronzed or reddened metal. B is a barrel lead on a shaft, connected with a *Fishing Gazette* Spinner at C. This shaft passes through the spoon twice—at top and bottom; it is connected at bottom with a tasselled triplet, and this tassel may be of scarlet wool and gold tassel, or it may be of gaudy feathers. I prefer the former, and this is how it should be dressed: Take the triplet between thumb and finger of the left hand (hooks being between them); now select your scarlet wool and pass it up to the ring of the hook. With two turns of the waxed silk make it fast there; now attach your tinsel in a similar way, and having stroked the wool evenly down, wind,

as shown spirally. Twist your waxed silk tightly once or twice more around, and fasten off. You can, if you choose, spin a fibre of wool around it first. Spin some thick wool on the remainder of your silk, and tie both tinsel and wool round tightly at the bottom of the hook opposite the fork. Now arrange the feather over the forks of the triplet and your artificial bait is finished. A similar set of instructions might be given in reference to Fig. 112. This is a bait differing in that the spoon flies loose, as depicted round the shaft at A as the bait moves through the water. This is a highly effective bait for large fish.

The "phantom" soleskin bait (see Fig. 116), patented by Messrs. Little, of Fetter Lane, quite deserves mention. It is composed of prepared soleskin painted; it is, of course, hollow, and becomes inflated as it is drawn through the water. Its colours are those of the trout and parr, and it is chiefly in request for salmon. Pike would probable destroy it.

Amongst all the artificial minnows produced by England and America,—and "legion" hardly expresses their number,—the greatest novelty I have seen is the bait shown in Fig. 113. As it so happens that I am at this time personally superintending the wholesale making of it, a detailed description of the various processes will put the amateur *au fait* of the usual method pursued in the production of such articles. Hard rubber is the material of the bait itself, or more properly india-rubber vulcanized. The bait itself is made at the rubber works for me as vulcanizing is a separate business, requiring expensive machinery; but the tyro can procure gutta percha, and, after constructing himself a mould, he

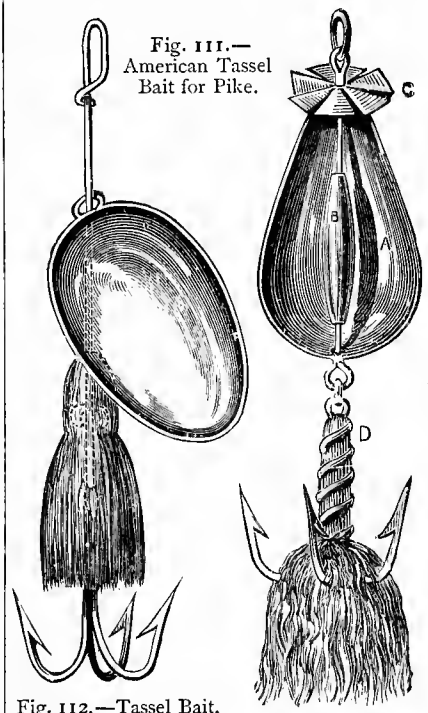


Fig. 111.—American Tassel Bait for Pike.

Fig. 112.—Tassel Bait, with Movable Spoon on Shaft.

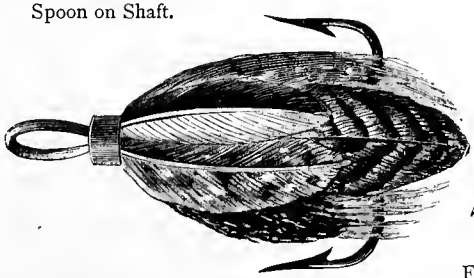


Fig. 114.—The Tail Feather Hook.

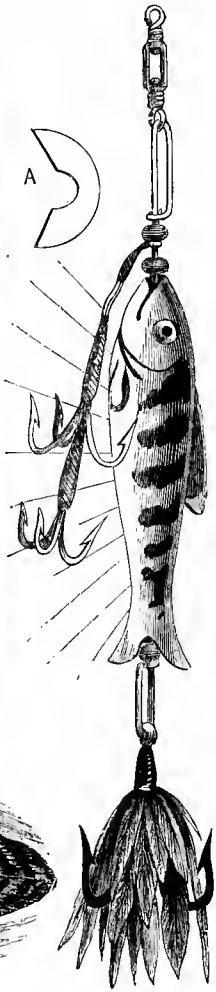


Fig. 113.—Patent Luminous Bait.

can, by immersing the gum in hot water, get it sufficiently plastic to take the impression of the mould. Supposing this to be done, and that he has the dark rough imitation of the fish before him, the next process is to paint it. Now Fig. 113 is first of all silvered over with silver paint, the next operation is to varnish the upper part with dark greenish varnish, and then bars are painted as shown, to represent the bars of a minnow. The next operation is the fixing of the pectoral fins or flanges which cause it to spin, but previous to this a wire is passed through the entire bait. Then, a slit having been cut, a piece of bright tin in shape of A, Fig. 113, is placed *in situ*, to form the fins, and each side carefully bent in opposite directions to constitute the screw-like action; finally a swivel and a flight of hooks is placed as shown at head, and another feathered treble hook at tail. Just a word about this—Fig. 114 exhibits the most attractive combination as fully as it is possible to show it on paper, in black and white, and it is thus made up. Strips of guinea fowl, mallard, and grey goose, scarlet ibis, and peacock, and white swan are grouped symmetrically, and with reference to their contrasts, round a treble hook, and fastened securely. This gives a beautiful appearance, and is found to be very attractive to fish. Finally, to finish the bait, it is painted with luminous paint, which makes it give out a white phosphorescence at night, and varnished with "crystal" varnish. Fig. 115 exhibits another form of artificial minnow of similar construction.

Though I refer the reader to Fig. 116 for an illustration of the Soleskin Phantom, it should be said that the cut represents the ordinary phantom made

of silk. The difference between the two consists simply in material, it being claimed that the skin of the sole is far tougher and softer in water than the silk. And so it is; and though it is quite possible it would not answer for pike fishing, it suits admirably for perch and trout as well as for salmon, for which fish it was specially designed. That its coloration is all that human foresight could suggest I may assert to be incontestible, Mr. Francis Francis having himself had considerable correspondence with the maker in reference to this point. The opinions

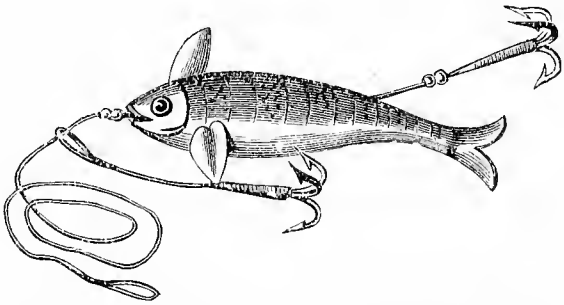


Fig. 115.—Artificial Spinning Bait in Imitation of Minnow.

of other experienced anglers hardly second to Mr. Francis were also taken.

The Phantom figured (Fig. 116) is, however, easier to make, and may be stated to consist of the head, which is a hollow casting with flanges attached, the silk for body and tail, and the flight of hooks as shown on twisted gut. The casting, probably, is best obtained from the makers, but the silk is simply of that kind known as Japanese, and may be either white, yellow, or red, according to the ground colour required. It is cut out to the size and shape required painted, and sewn up the back very closely and

neatly. In this dry condition the Phantom is of course collapsed and shapeless; but on being drawn through the water the latter fills it through the hollow head, and it is at once tubular and symmetrically fish-like. It is as well to let it imitate a small trout, and to that end the maker should procure one in order to copy the coloration. I need scarcely say, that any one intending to make this bait,—and for the fish named it is a splendid lure,—should buy one of Little. The head need not be of heavy cast metal if that is not easily got; then zinc or brass will do, but in that case a sinker is necessary on the trace, to which part of his outfit I will refer the reader presently.

The "Electric" bait, shown at Fig. 117, is one that has told a good tale of the great lake trout, pike, muscallouge, and black bass of the New World; and I predict that if used in smaller sizes it would do so in the Old World waters. As the intelligent reader will observe, it is cut out—either by stamping or shears—from a sheet of metal in one piece, and after being turned to shape, it is soldered to the tube at A, through which a rod runs terminating with a tail hook and at the top end a swivel. Usually the metal is painted red inside, and the outside is bright —nickel plated usually. It is a most durable and useful bait.

Fig. 118 is also struck out from one piece of metal, and no explanation of the *metal* bait is required to make the process of manufacture clear to the attentive reader: but as the *tail* baits of Figs. 118 and 119 are novel, some detail of their construction, though more fitly coming under the heading of "fly making," may be given here, so that the way may

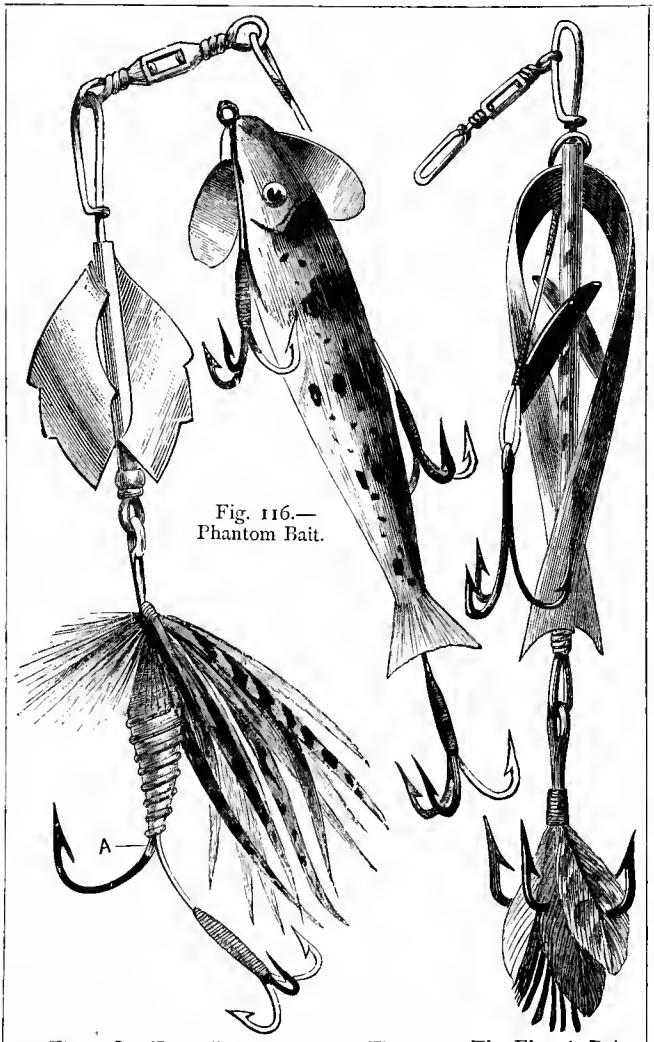


Fig. 116.—Phantom Bait.

Fig. 118.—Fancy Lure.

Fig. 117.—The Electric Bait.

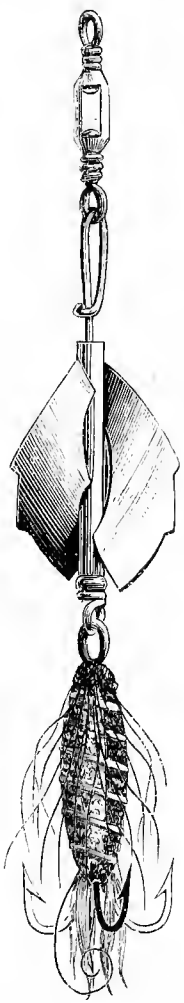


Fig. 119.—Another "Fancy" Allure.

be clear as I proceed. In making Fig. 118, a triplet is first whipped on gimp in the ordinary way. About half an inch further up a 3s. sproat hook is also whipped, the end of the gimp being turned into a loop. A piece of gold tinsel is next wrapped round the body at A, and secured by one turn of the loose whipping silk. A length of coarse floss silk, of any bright colour, is next tied by one end and a piece of cotton wadding, worked up to a taper at both ends, is tied by one end at the side of the shank. In addition to this, and at the same time a length of thin chenille is also secured. These are all wound on in the following way: —First take the waxed thread and lead it up to the end of the shank and secure it there with one tie, now take the cotton and twist it round the shank to make a body, rounding it nicely and tapering it to finish at about $\frac{1}{4}$ inch from the end of shank. Secure it with one turn and a half-hitch of the silk. Now take the silk and wind it closely and evenly over the cotton, and tie as before; next wind the chenille so as to rib the silk as shown in Fig. 118, finish this off neatly. Now take a couple of hackles from a red cock's neck, and attach it according to the

directions given in the chapter on Fly-tying. The wings are strips of scarlet ibis wing feather, mallard, and other feathers of a gaudy nature.

Fig. 119 presents the imitation of what our cousins across the "Herring-pond" term a "bug," and what we term a "grub." It is made in a similar way as regards the body, and the tail consists of red ibis feather, the legs of strands of dyed gut, and the head of a strand of peacock tail wound round. If the reader will turn to the chapter on Fly-making he

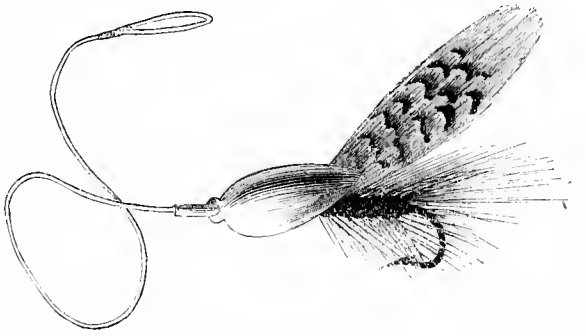


Fig. 120.—Spoon Fly.

will find ample instruction for making these additional features of the artificial baits under consideration.

The Spoon Fly (Fig. 120) is remarkably deadly to fish also; and the fly consists of an ordinary large gulse, or lake trout fly, above which is slipped a little spoon of metal. This spoon is first put on to a tube of metal, on which it revolves. This is a necessary proceeding, for if the ring of the spoon were placed on the naked gut its rapid revolutions would cut it very soon. I always use a thin lead

tube—which is only a lead wire bored, and it answers better than anything else.

Fig. 121 shows the "Weighted Perch Bait," which is a neat and effectual "artificial," having its sinking lead enclosed in the upper part of the bait, underneath the metal. One side is usually silver plated, and the other side bronzed.

The special feature of Figs. 122 and 123 is the spring shown at A, A, in each figure. When a fish seizes this bait, the spring allows it to collapse in his jaw; and the strike of the hooks is then unimpeded. This valuable improvement is quite incorporative

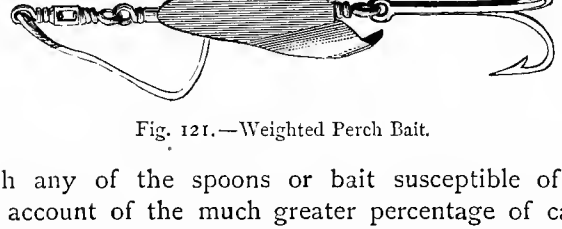


Fig. 121.—Weighted Perch Bait.

with any of the spoons or bait susceptible of it, on account of the much greater percentage of captures capable of being made with it, as compared with the old style of rigid tackle. The Bead Spoon, Fig. 124, shows a novel way of combining the sinker with the spoon. It may be painted red, or be a plated sphere of metal left bright.

The next thing demanding attention in connection with spinning, is the "trace." This is the line to which the bait is attached. Generally it is composed of gimp, and is about three feet long. Twisted gut is also used, and I prefer it, but, on the score of expense, gimp is preferable. A three feet gimp trace is usually

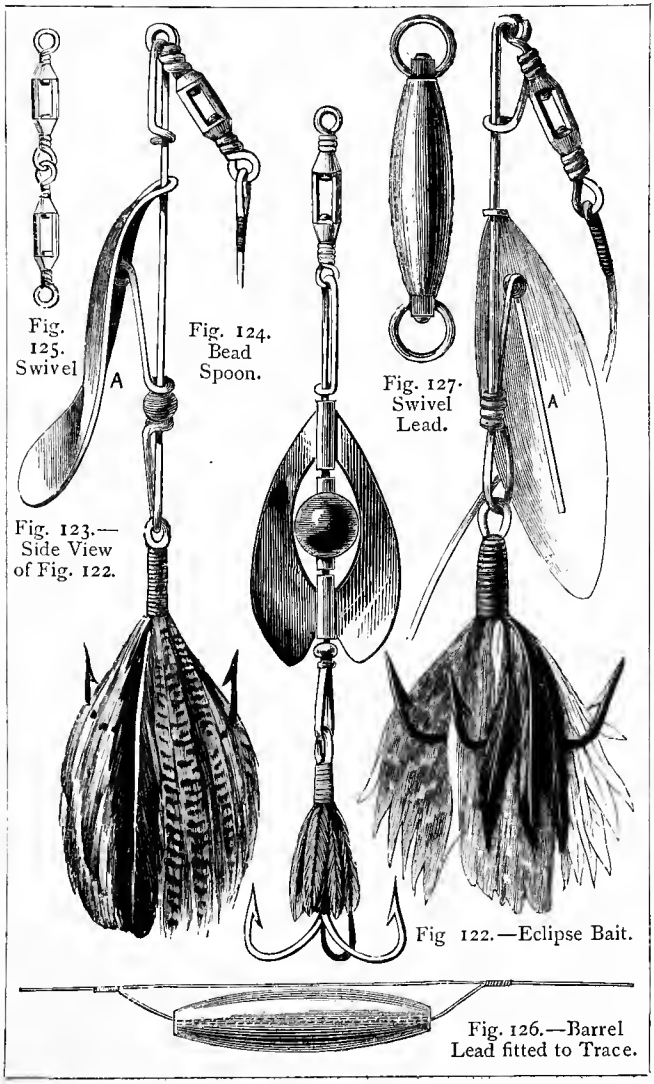


Fig. 125. Swivel

Fig. 124. Bead Spoon.

Fig. 127. Swivel Lead.

Fig. 123.—Side View of Fig. 122.

Fig 122.—Eclipse Bait.

Fig. 126.—Barrel Lead fitted to Trace.

broken in three places to admit swivels, and I prefer these double, as in Fig. 125.

I do not recommend them to be quite so large as the drawing, but double they should be, and of brass, for steel is so apt to rust. The first swivel is placed just the other side of the loop, which should be whipped into the loop of the swivel very securely. The next swivel at a foot's distance, and the next just before the lead. The lead is what is called the "barrel" lead, and it is very useful in all its sizes for all sorts of things. Fig. 126 shows it as it should be when placed *in situ* on the trace. It is better to loop it on to the gimp as shown, because it then hangs dependent, and is with the swivels a sure preventive of that curse of spinners, "kinking," a term applied to the state of tangle occasionally befalling even the best arranged and used tackle. A good Swivel Lead is shown in Fig. 127.

Live baiting for pike is by no means so full of sportsmanlike feeling as spinning. The hooks for live bait are generally a good double one, and a single lip-hook, or a triplet and lip-hook. The trace is ordinarily of about a yard of gimp, and two swivels are generally employed, as represented in Figs. 128, 129, 130, 131, and 132. Fig. 128 is usually placed at the end nearest the hook, and Fig. 129 at the top instead of a loop; a stout cork float, and a barrel lead held half-way up to it from the bait, completes the tackle. For simplicity and killing power I do not suppose any tackle soever can rival this. Fig. 133 attempts to show the *tout ensemble* of the trace and hooks baited.

Trolling is a very ancient style of fishing, as I have elsewhere indicated. It consists, in respect of tackle,

of a weighted hook, of which Fig. 134 is a very sufficient indication. This is drawn into the stomach

Fig. 128.

Fig. 129.

Fig. 130.

Fig. 135.

Fig. 131.

Fig. 132.

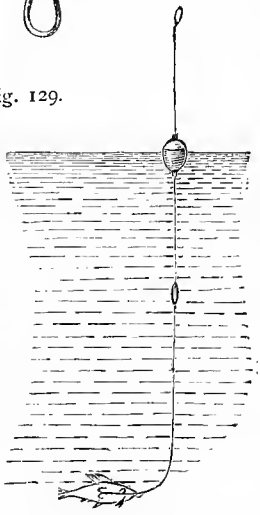


Fig. 133.

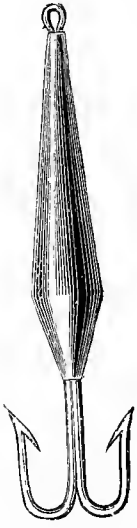


Fig. 134.

Fig. 128.—Trace or End nearest Hook. Fig. 129.—Trace for Top. Fig. 130.—Hook Swivel. Fig. 131.—Corkscrew. Fig. 132.—Watch-spring. Fig. 133.—Appearance of Trace, Hooks, and Bait when complete. Fig. 134.—Weighted Hook for Trolling. Fig. 135.—Another form of Weighted Hook.

of the bait from the mouth by means of a baiting needle, which can be made in five minutes from a piece of brass wire. Of course a length of gimp is

attached to this, and this is generally a couple of feet in length. A swivel, as in Figs. 128 or 129, completes the gorge hook. A gorge hook may very efficiently and readily be made by whipping on a double hook to a length of gimp, and before adjusting the swivel drawing on a large barrel lead, as Fig. 126. It is gently pinched so as to close on the shank of the double hook somewhat low down, and one then has an amateurish but perfectly serviceable hook. Fig. 135 can be made in the same way, and really I don't know which to prefer for efficiency. Certainly the manufactured ones cost more money, and that alone is sufficient recommendation in the eyes of many.

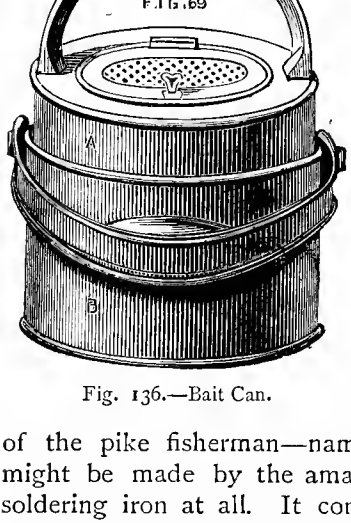


Fig. 136.—Bait Can.

Fig. 136 shows the last but not least important item of outfit of the pike fisherman—namely a bait can. This might be made by the amateur if he can use the soldering iron at all. It consists of an outside receiver, B, which encloses an inner one, A, perforated as shown in Fig. 137. The receiver should be made of coarse zinc netting, so that on arriving at the water it can be lifted from the stale water in B, and placed in the stream. Of course this arrangement also facilitates the catching of any particular bait from the can.

Fig. 138 shows a floating minnow pail. The box at A is of tin, and air-tight. Consequently, wherever the can is placed in deep water it will float.

Eels are remarkable and peculiar fish, though it is not so very hard to catch them; of course, the

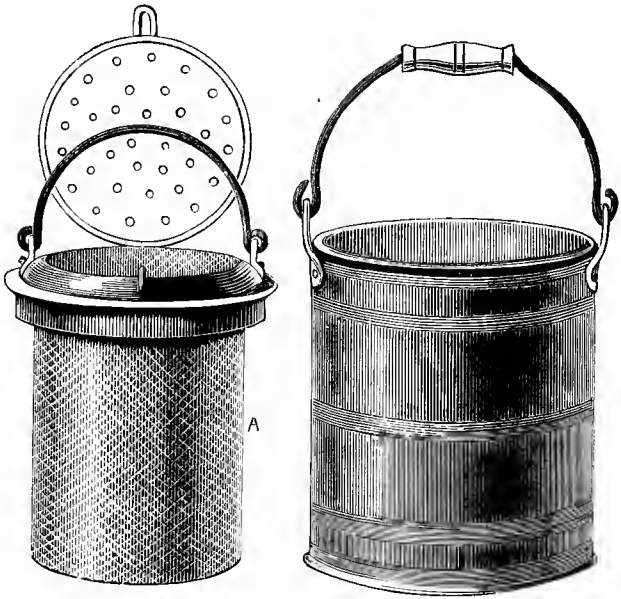


Fig. 137.—Bait Can.

readiest means is to watch the air-holes in summer time, and sharply plunge down a spear, such as Fig. 139 represents. This simply is composed of thin bars of iron serrated and fixed as shown. I have seen them home-made, with teeth fixed to a crossbar like a garden fork. The crossbar need only be of good hard wood, such as holly or well seasoned oak, if the spines are put in firmly; but do not forget that

iron and wood, as a rule, do not bear on each other remarkably well. A good straight ash pole is necessary for a handle.

If the angler prefers setting night lines he can do this, winding his lines on a bobbin similar to Fig. 140

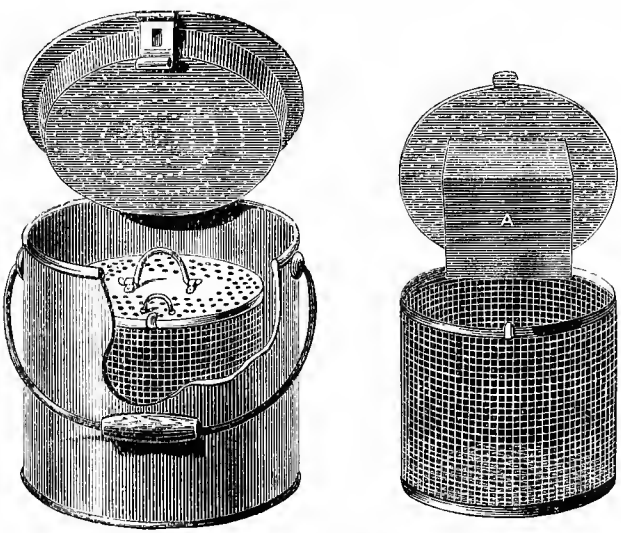


Fig. 138.—Floating Wire Minnow Pail.

I make mine very easily; getting the right side of my wife's draper, I manage to get him to save all the twist reels he can spare. These are something like A; B can be represented by any piece of hard wood; hazel mine are, from a copse near me. I then stick a long nail with a brass head, through the reel and into B, and the trick is done. In setting your line stick the spike in the ground tight, and just undo sufficient line to reach to a likely spot.

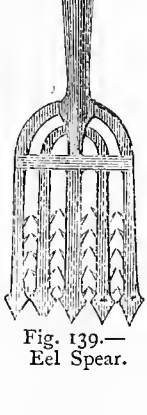


Fig. 139.—
Eel Spear.

The tackle for the "greedy perch, bold biting fool," as Drayton very insultingly, but truly, terms the fish, is not far away different from that for pike, except that several separate hooks are usually placed on one line. There is a distinctive piece of tackle termed the "Paternoster," which I must tell my readers how to make. First, a pear-shaped lead, with a ring in the upper part, is slipped into the

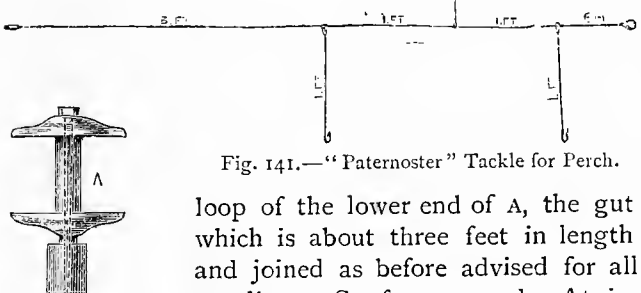


Fig. 141.—"Paternoster" Tackle for Perch.

Fig. 140.—
Bobbin for
Night Lines.

loop of the lower end of A, the gut which is about three feet in length and joined as before advised for all gut lines. So far so good. At intervals, as shown at Fig. 141, hooks on other gut or gimp—occasionally the latter if a jack be suspected near, and these are joined by loops tied at intervals in the main line, and loops tied at the ends of the gut links.

A good fish-carrying basket made of india-rubber is shown at Figs. 142

Fig. 142.—Open Fish Creel.

and 143. It is the best I have ever seen for portability and lightness.

How to use the pike, perch, and eel-tackle now requires a few words of a necessarily brief tone and practical character. I deem these the more necessary because one cannot be a really first-class amateur tackle maker unless he knows when a bait works well and truly, though there are many who profess the trade without being anything but very indifferent anglers, if indeed they be anglers at all. First, then, as to *pike*. There are, as I have said, three methods of catching this fish in general use: spinning, trolling, and live baiting.

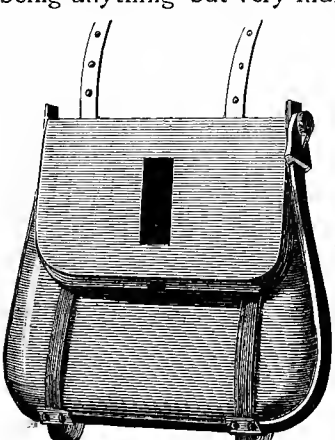


Fig. 143.—Closed Fish Creel.

I. *Spinning*. Spinning is of two kinds (1) Spinning with the natural bait; and (2) Spinning with the artificial.

(1) *Spinning with the natural bait*. The bait

is either a gudgeon, roach, dace, bleak, or other small fish, and the flights in use are indicated by Figs. 102, 103, 104, 105, 106, and 107. For various reasons I personally prefer Fig. 102, and the following is the method of baiting. Take a bait of about five or six inches long, kill it, and insert A, Fig. 102, through the vertebræ just above the fork of the tail. Bend the tail round the hook, and pass the hook, which is turned tailward into the side of the bait deeply. If this be done carefully, the tail of the bait is now bent to a semicircle, and fixed so by means of this one "pot-hook," as it is termed. Now insert B in the side of the bait, leaving the other two hooks standing out. Next take a turn of the gut or gimp round the bend of the lip-hook C to retain it, and pass it through the lips of the bait—*both* lips. You have now a bait that will spin. So much for the bait.

The trace, either of gimp or gut, is as described; and the reel line should be of a thickness proportionate to the rod and bait. By this I mean, the reel line should not be unduly thick or thin; the happy medium is best. The rod should be as shown in the chapter on rod-making, where the exact plan of a pike rod is given.

The reel or winch is just whichever you prefer. For myself I prefer Slater's make of wooden winch, for I always throw from the reel. This saves tangling the line with twigs and the growing grass or undergrowth if you are fishing from land, and from getting the line under foot if you are fishing from a boat. The following brief directions may help the amateur in his efforts to cast from the reel direct.

Allow about seven feet of the line nearest the bait to hang from the rod's point. Plant yourself firmly

and easily, with the point of the rod raised well up, and grasping the rod thus: The right hand clasps the butt just below the reel, and the forefinger is placed so as to act as a break on the circumference of the outer or right-hand plate of the winch, which will presently revolve, as the line is paid out; the left hand firmly grasps the rod about six inches above the reel. In this attitude we make the cast from left to right, the positions of the hands being reversed when casting from right to left.

In making the cast itself, the body is turned half-about-face to the right, and the bait and point of rod brought round to nearly opposite the point it is desired to reach. Considerable force is then used to acquire momentum, and as the bait swings round it is released at a tangent, and flies off in the direction required, unreeling the line as it goes. As the velocity decreases and the bait falls, the forefinger responds to the eye, and with steady pressure stops the reel, so that it does not over-run. The ever so slight raising of the rod's point at this precise moment drops the bait without splashing, and thus the "Nottingham" cast from the reel is made. It seems easy to do, but most difficult in actual practice.

If you cannot acquire this accomplishment there is no help for it, you must cast from coils laid out smoothly on the ground or in the boat. This is still the most common way of spinning, and requires less room around you, which is an advantage where trees and other obstructions are near where you stand.

The motion given the bait as it passes through the water should be a series of long but gentle jerks; and immediately you feel the bait seized, you strike, not as if you wanted to tear the head off somebody, but

still smartly, that the hooks may be firmly fixed. Then play the fish till he is exhausted, and use your landing-

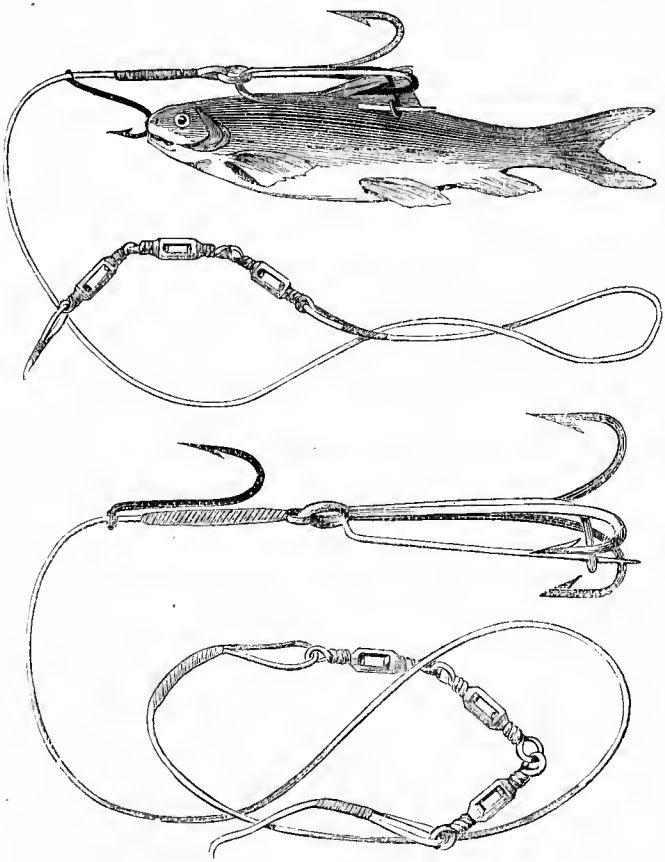


Fig. 144.—New Live Bait Tackle.

net with caution, always bringing it up to the head of the fish from the tail, and not with impetuosity making a dive for the head, to thereby lose the fish, and

very likely the hooks, as the fish, seeing your movement, makes one convulsive struggle and is gone.

(2) *Spinning with the Artificial Bait* is very similar; and all except the lighter baits can be cast as described. I prefer the imitation of a fish to the spoons; but they are often found better than anything, especially when they are new to a water.

II. *Trolling with the Gorge Bait.* This is a most deadly method, and consists in giving a sink and draw motion to the bait, which is cast as in spinning, hither and thither, and especially where there are weeds unapproachable by the ordinary spinning baits. On perceiving that a fish has taken the bait,—or, in other words, that you have a "run,"—the line must be slacked, and from five to ten minutes grace given for the fish to pouch it. By the end of this time the pike has probably swallowed it; and the maw or stomach has tightly closed round its indigestible food. The fisher now reels up and proceeds to *draw in*, not strike, for the hook requires no force except that used by the fish itself, to lodge the two barbs in the tenacious membrane. And so the fish is caught.

I do not advocate this kind of fishing, for if the fish is a small one it cannot be returned to the water with a hope of its survival, owing to the injury to its vital organ, the stomach. Besides, the resistance made by the caught fish is but feeble, and the sport derivable therefore reduced to the minimum.

Live-baiting, if carried on with "snap" tackle, as figured (Fig. 133), is a very killing and unobjectionable method of catching pike. Especially is this so if the American style of live-bait be used as shown (Fig. 144). The lip-hook is better arranged if it be *fixed* on the gimp, as it is obvious that when the bait

is cast the lip-hook, being loose, allows the whole weight to bear on the pin at the side of the hooks, which is thrust under the skin. Of course the angler should strike immediately he has a run—at once on the float going down.

Perch may be taken by any of the baits used for perch; but it is seldom that any, except the largest, reward the angler fishing with pike tackle.

The Paternoster, as figured, is a specific tackling for this fish, and is baited with minnows or small fish. The line is then cast a distance of a few yards or more and gradually drawn nearer at slow intervals. On the fish taking the bait, a pause of a few seconds may be made, and a smart strike then fixes the steel. It is not uncommon to find a school or shoal in a very small space, and that all and each can be taken at a sitting by paternostering as described.

The eel can be taken as indicated (page 110), and the lines should be set at night, especially after warm showers. A No. 13 or 14 hook (Fig. 19) is proper for this muscular fish, and the strongest of gimp or whipcord must be used to bind it to. The bait may be a small fish or worm.

It is proper to add that the spoons and phantom baits are often employed for salmon, especially on the Pacific slope of America and the waters of the Labrador and the lower St. Lawrence, and also the anadromous trout, which often attain great size. In England they are made small for trout; and though in point of sport they are not to be compared as weapons of destruction with the dainty fly, yet there be some good men and true who use them, and for their sakes they ought not to be wholly condemned. "Damning them with faint praise," you will say. So be it.

CHAPTER VI.

WOODS USED IN ROD MAKING—STEEL CENTRED FLY-ROD—FORMS OF ORDINARY RODS.

"NOTHING is new but that which is forgotten," is a saying attributed to Talleyrand, and full of wisdom. It applies to fishing as to many other arts, and, therefore, when I tell my readers that the Ninevites—as evidenced by their bas reliefs—used a rod in the capture of fish, they need not regard the news as a matter for surprise. As I shall show in a subsequent chapter, the Macedonians employed artificial flies; and even the gorge hooks which Nobbes immortalized in his "Art of Trolling" (1682) were referred to by Oppian, and found amongst the ruins of Pompeii. For aught we know, the angle rod may even have been used on the banks of the four rivers watering the paradise of the "grand old gardener," Adam! The point is, however, of no importance; and the past history of the fishing-rod may be dismissed by briefly saying that its complete efficiency dates from about a hundred years ago. Improvements in detail have arisen abundantly; but the principles governing rod-making are practically unalterable, and once having been recognised must perforce guide every subsequent production. I have a fly-rod in my possession at this moment which has probably killed tons of fish—for it is over a century old; and yet its taper and general

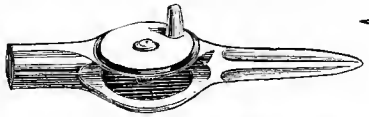


Fig. 146.—Winch in Butt.

Fig. 145.—Foster's Steel-centred Fly Rod.

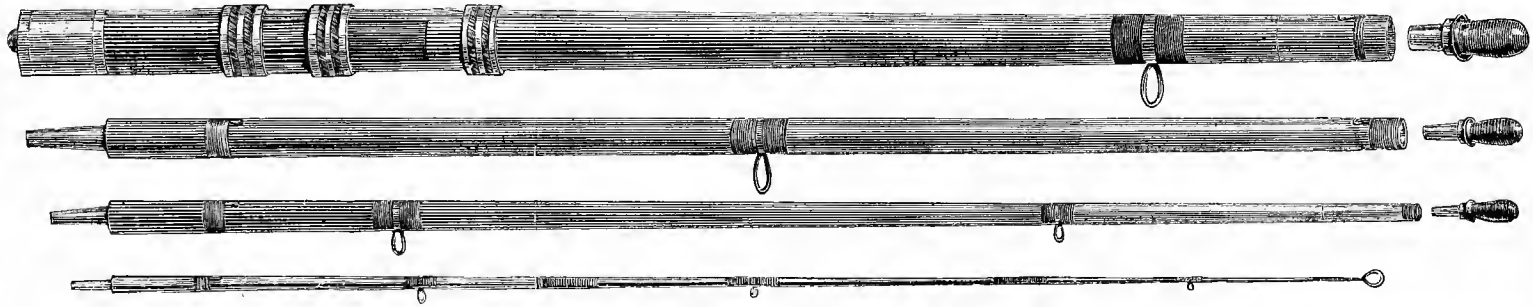


Fig. 147.—Pike Rod.

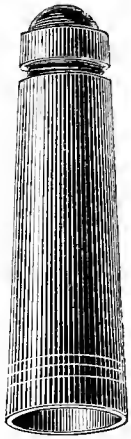


Fig. 151.—Bottom Ferrule of Walking-stick Rod.

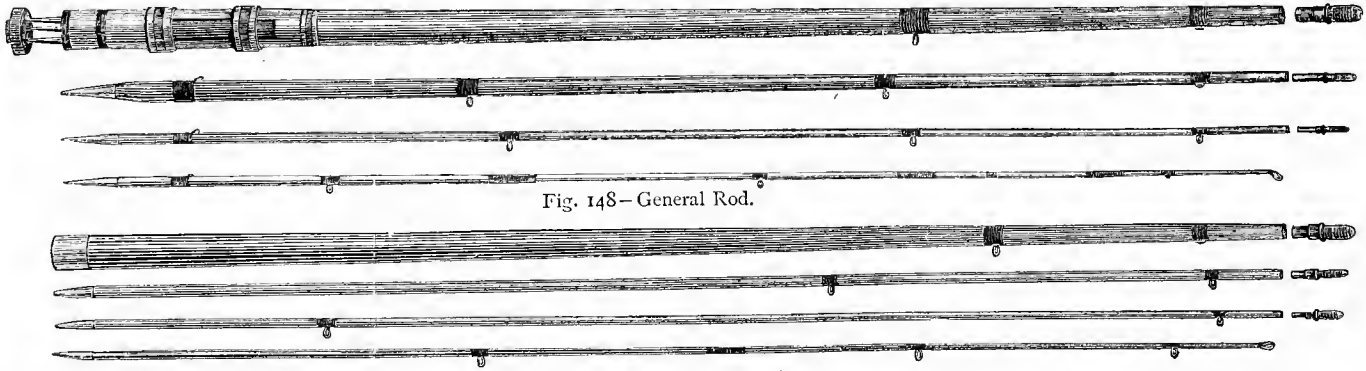


Fig. 148—General Rod.

Fig. 149.—Ash Trolling Rod.

Fig. 152.—New Style of Pike Rod

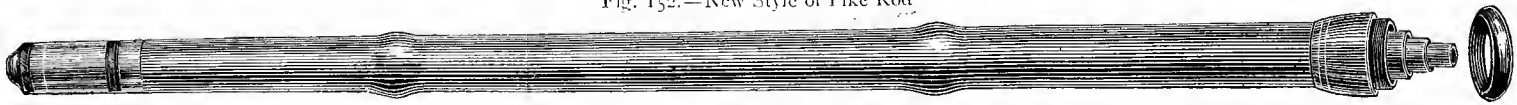


Fig. 150.—Walking-stick Rod.

Folding Plate No. 2, containing Figs. 145-152, to face page 123.

appearance is totally unimpaired, and the entire *tout ensemble* is quite comparable with some of the more costly finished weapons of this superlative age.

The wealthy angler delights in many rods of varied patterns. He has his rod for trout fly fishing in rivers, and a different one for the same named fish in lakes; then there is one for trout trolling, and another for spinning; different ones for the salmon, pike, perch, barbel, chub, dace, and the other fish of that order—even the little gudgeon must have a special weapon. There is no reason why the angling Crœsus shouldn't spend his money in this way; but I apprehend that some readers of this work may not be inclined to so indulge themselves; and I purpose, therefore, to give a brief notice of certain typical rods, and to simply and tersely explain the *modus operandi* of rod-making and mending, to the end that any one with ingenuity, and a certain amount of handiness in his composition, may construct his own "wands," and do his own repairing to his satisfaction. Of course, I must assume a little knowledge of the use of tools employed in woodwork.

Before the industry of professional tackle-making had existence—for, as I have premised, the tackle manufactories of to-day, are distinctly of modern growth—the angler was *obliged* to construct his own tackle ere he could catch "fysshe." The sturdy ashen pole, thick as an "arme grete" (*i.e.*, thick as your arm), bound with "hopis of yren" (hoops of iron) for ferrules, described by the first English author on fishing, is completely out of fashion; and the dainty split cane, eight-ounce rod looks like a veritable fairy wand in comparison with this formidable weapon figured in the "Boke of St. Albans." At this time, deftness of

mechanical skill, the discovery of better materials, and the recognition of the necessity of increased lightness and skill in angling, have separately and together induced the productions which, in many cases, seem absolutely perfect and susceptible of no improvement. I shall give descriptions and illustrations of what a long experience has convinced me to be the best styles only of rods and their fittings.

First.—A few words as to the materials from which modern rods are made. Of our native woods, ash, yew (for short butts), lance, red deal, hazel, withy hornbeam—and for butts even chestnut and oak are utilized as occasion requires, though each and all are to a great extent superseded by foreign material to be hereafter mentioned. Ash is still a capital wood for the thicker joints, and lance and red deal are invariably used for the manufacture of the very beautiful so-called Nottingham rods, which are at once so cheap and durable. The other woods are, however, incurably out of fashion, owing to importations of better and more suitable material.

The names of the chief of the various foreign woods used in rod-making will probably convey but little idea of their relative or positive value; but I give them because a treatise on rod-making would be incomplete without them. They are hickory, washaba, Bethabara, greenheart, blue mahoo, snakewood, and red locust; and of the hollow woods, East India cane, bamboo, Carolina white, and jungle cane are those most in request.

Of these, the most in favour by those rod-makers who are themselves practical anglers, are hickory, greenheart, and the canes. Hickory used to be very much in favour; but, as compared with greenheart

it is found to warp unduly after contact with water, and is, therefore, now chiefly used for butts, in such rods where its weight is of value in contributing to the proper "balance"—a term to be explained further on.

Hickory is a North American and Canadian wood, and is sent to us in "billets"—that is, I need scarcely explain, in V-shaped longitudinal sections of the log. On their arrival in this country, these billets are commonly cut into thickish planks, which are properly seasoned by being packed away some considerable period, before being used. Of course, the largest and best makers have it in their power to buy the best stuff, and this involves the giving the best price—a truism I should not trouble to repeat, were it not so often forgotten; hence their comparatively high prices for the manufactured article. The rejected residue is disposed of to smaller makers; and these people are enabled to produce at a cheaper figure.

Greenheart grows in the West Indies, and is very much used—indeed, I go so far as to pronounce it the very best all round material for all the joints *except* the butt of fishing-rods of whatsoever description. A stiffer wood is probably better in combination for the butt. Greenheart is very elastic, and may be drawn out to exceeding fineness without becoming brittle. This wood has a nasty habit of warping as it seasons; but a little manipulation over a spirit lamp, and subsequent suspension with heavy weights attached, generally rectifies the fault. Let me, however, impress one weighty piece of counsel on the amateur—never buy a *cross-grained* piece of greenheart, for as sure as fate it will "go" sooner or later, perhaps when the user is fast into a good fish—at which juncture it is very probable that the recording angel will be busy.

Of the hollow woods, the bamboo of the East Indies is very serviceable. Its natural length is often quite 20 feet, and its tenacity of fibre makes it a favourite for roach and spinning rods. The Carolina cane is usually employed for butts. The jungle canes are of Asian growth, and are chiefly utilized for the glued-up split cane rods which are so popular—rather undeservedly, I think. The beautifully mottled appearance of a well-finished cane rod is produced by staining the wood with aqua fortis and nut galls. The stain is burned in immediately it is put on. The rods are then rubbed with sand-paper, and highly polished—a dozen coats of varnish being not unusual in some cases. Of this subject more, however, later on.

Though wood is for all ordinary purposes the best material, it occurred to that most accomplished angler, David Foster, of Ashbourne, that a union of steel and wood "would, if arranged correctly in right proportions, be an advance in a desirable direction." This idea was reduced to a practical result, and the "steel centred fly-rod" is an accomplished fact, and protected by Her Majesty's letters patent by the sons (Messrs. D. and W. H. Foster) of the "amiable angler of Dovedale." Their claim for its excellence is thus forcibly put: "In this recent development in solid wooded rods the inventor's aim has been, first, *strength and durability;* second, *pliancy and lightness;* and, lastly, the consequent *reduction of length and condensation of power.* That these objects have been obtained . . . . there is ample testimony . . . . continually accumulating from habitual users. The presence of the steel core in the *butt only*, serves to strengthen a ten or eleven foot rod, so as to render it

capable of casting an equal distance with an all-wood tool having 18 inches the advantage in length, whilst lightness and precision in the out-put of line is more marked in the case of the former. With two joints out of a total of three steeled, these advantages are the more manifest. The spring derived from the presence of the metal core has an effect difficult, verbally, to describe—such are the working results of the backbone thus instilled. The easing nature upon the hand and arm incurred by its use is so significant, that anything short of a practical test can only impart an imperfect impression of its appreciable qualities. Wrist action only is all that is called into play in the delivery of an average out-put of line; and by this motion the perfect swing of the implement pays forward the length equally with ease and precision."

There is also another advantage in the build of this rod. The reel is made inside the butt, so to speak, and thus all the nuisance of the line entwining round the reel is entirely avoided Figs. 145 and 146 represent the rod in its entirety and the detachable winch in the butts.

That the tyro in rod-making may have a good general idea of the build of ordinary rods, I give several diagrams of rods in a complete form. Fig. 147 shows, a four-joint pike rod, the separate parts of which I shall presently show. Fig. 148 exhibits a general rod suitable for several purposes, such as pike, perch, and barbel fishing with the "ledger." Fig. 149 is an ordinary and most easily made ash trolling weapon, quite suitable for gorge or line bait-fishing; whilst Fig. 150 shows a walking-stick rod made throughout of bamboo, and suitable for roach or other light fish. A is a terminating ferrule, an en-

largement of which is shown by Fig. 151. Fig. 152 shows a new style of pike rod, with rings both on the upper and under side. It is of American build.

I think I may safely aver that the cuts give a fair idea of the rods within the power of the amateur worker to make; and after the reader has carefully noted them, it becomes opportune to go on to a consideration of the next part of our subject, namely, "Rod-making and Repairing." I have noticed that many persons have expressed a wish from time to time for a book containing instructions in the art of making new rods and repairing broken joints and other damage, and I will endeavour to satisfy them here to the best of my power. In my opinion, every fisherman ought at least to be able to mend his rods as well as to make his own tackle, for he will often find himself in a position in which he can get no aid from professional rod-makers, and must perforce fall back on his own resources.

CHAPTER VII.

THE ROD AND ITS VARIOUS PARTS AND FITTINGS.—THE TOOLS AND APPLIANCES NECESSARY FOR ROD-MAKING.

EFORE the amateur can make his rod, it is self-evident that he must have the necessary materials and tools. A few remarks on these heads must therefore preface the description in detail of the actual operation of manufacture.

Materials.—I have already expressed my predilection for greenheart, and will assume that the beginner is anxious to make such a rod as that shown in Fig. 147, and to construct it entirely of this wood. Let him, therefore, write to Mr. G. Currell, 6, Jewry Street, Winchester, stating that he requires greenheart for a rod of that description. The reply he will receive will be a guide for future transactions, and I am sure that Mr. Currell will give him no cause for complaint. He will probably receive the necessary wood, roughly cut in lengths for the joints, which lengths may be of the following measurements, to be long enough for a 12 foot rod: Butt, or thickest joint, 3 feet 4 inches; second joint, 3 feet 4 inches; third joint, 3 feet 3 inches; top, 3 feet 1 inch; and the wood must be thick enough to work out to the gauge of the rod, whose ferrules, counters, butt, and top are given in Fig. 153.

So much for the wood. We now come to consider

the fittings. The ferrules are the first requirements in this connection, and it is not probable that the tyro will be able to make them himself, for the reason that they must be exceedingly true, and nothing but the machinery specially invented for the purpose could turn them out satisfactorily. There are two kinds of ferrules—one kind is sawn off ordinary brass tubing, and the other is made separately from sheet brass turned into a tube, and the joint brazed; this latter is far and away the best, so, when you are sending to Mr. Currell, be careful to ask for the brazed ferrules and their counters. "Counters" is the term used to designate the brass work shown at A, B, Fig. 153, and which fits into the ferrule, as shown by the dotted lines. Besides ferrules, as shown in Fig. 153, as necessary to the build of a rod, there are some persons who dispense with the smaller ferrule indicated at B, and use only the larger, as shown at Fig. 154, C fitting tightly into D. If these ferrules are good and true, this joint answers capitally and obviates the difficult process of boring for the small counter or dowler, a process of great delicacy as will be seen when I proceed to advert to it. If rod keepers are whipped on, as indicated at E, Fig, 153, this plain ferrule is every whit as serviceable as the other. The keepers are tied together with strong thread, so that the joint cannot slip. I have already, in page 59 and following pages of this volume, given details of improved winch fittings; of course they are, as I indicated, extremely serviceable; but when cost is an object, the old-fashioned fitting is preferable. Fig. 155 shows it. The whole is of brass; A is a brass tube with rectangular piece cut out at B; C is a ferrule, which is stationary; and

Folding Plate No. 3, containing Fig. 153, to face page 126.

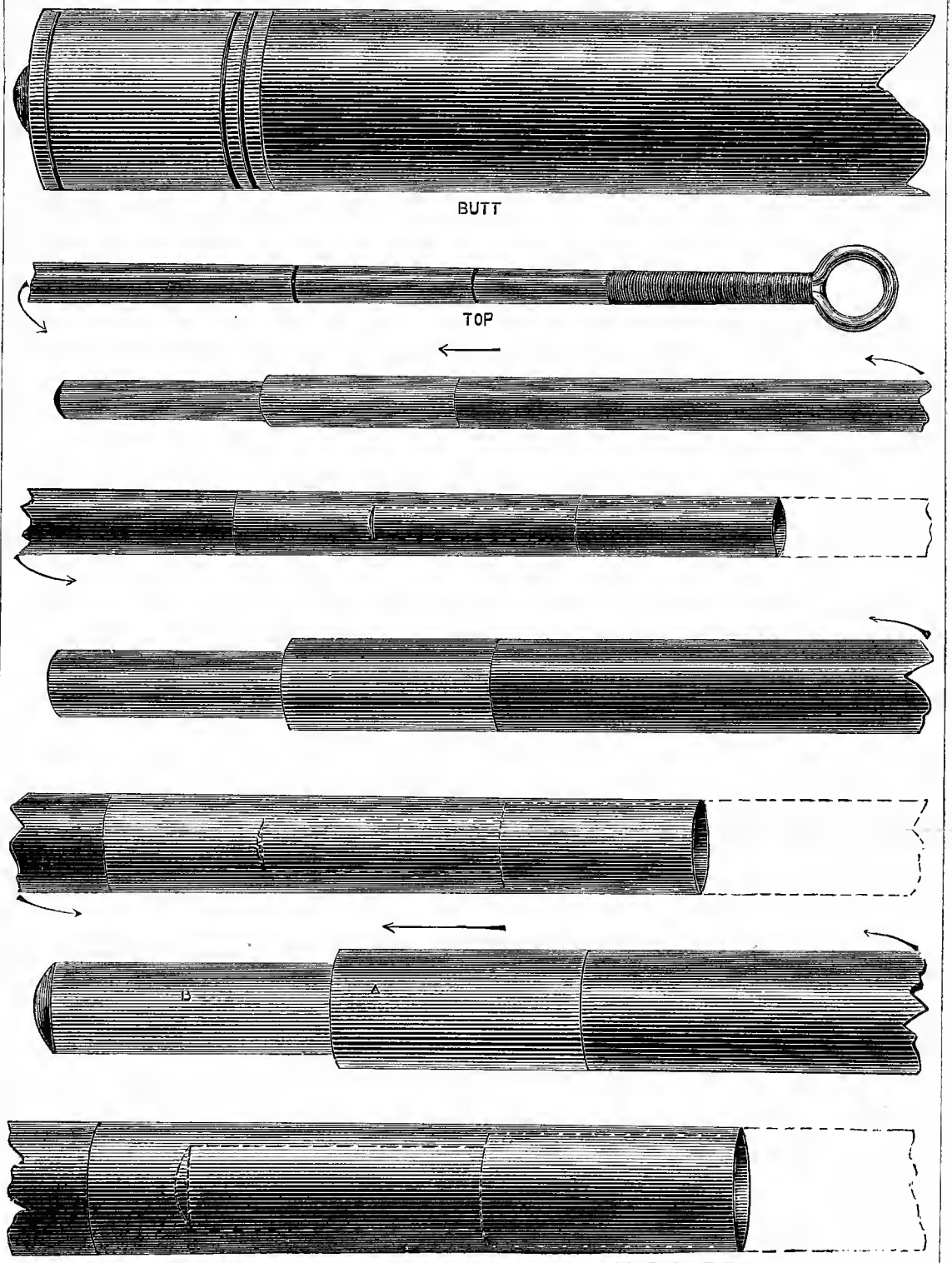


Fig. 153.—Butt, Top, Ferrules, and Counters of Twelve Foot Pike Rod. Full size.

D is a movable ring, which is pushed up whilst the plate of the winch is passed under C in the rectangular open space at B, and is brought down to confine the upper end of the plate. This winch fitting has a decidedly handsome appearance, being all of brass, and polished when in its place on the rod. For commoner rods, three ferrules, like those shown at Fig. 156, are substituted. A is the upper one, and is fixed; B slides, and C is fixed; a rectangular space about three inches long, by $\frac{3}{4}$ inch wide, and $\frac{1}{8}$ inch deep, is cut in the butt of the rod, extending some distance under C; into this the winch plate is passed, and the ferrule B is pushed over the upper end. These ferrules can be got with the others, of Mr. Currell, if desired.

Having noticed the ferrules, we pass on to the line rings. Of these there are several sorts, and some of them can be made by the amateur. I will refer to those first that can be readily manufactured at home. They are indicated by Figs. 157, 158, 159, and 160. Fig. 158 is, as can be readily seen, simply a wire, German silver or brass, twisted into the shape shown, and the extremities flattened. As the rings up the rod must not be all of one size, pieces of steel wire of different gauges may be employed as moulds round which to twist the ring wire. This done, a tap or two with the hammer and a touch of the file completes the ring. Fig. 157 simply consists of two pieces of hardened brass wire placed in juxtaposition. At their point of junction they can be touched with a little solder, but if they are whipped on truly, after having their meeting edges flattened with the file, they will be secure enough. This form of ring is, without exception, the best in practice that I know

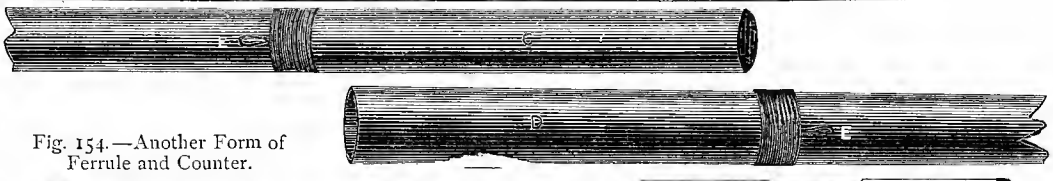


Fig. 154.—Another Form of Ferrule and Counter.

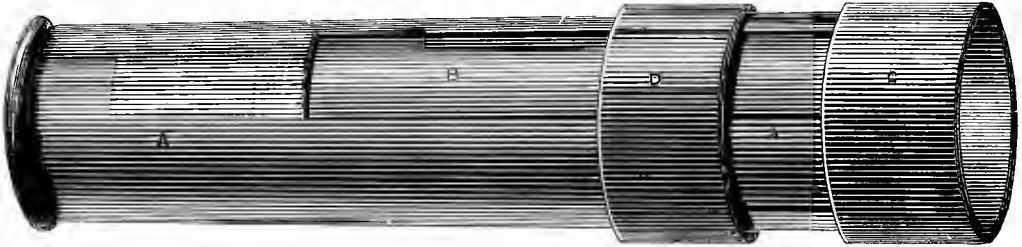


Fig. 155.—Improved Brass Winch Fitting.

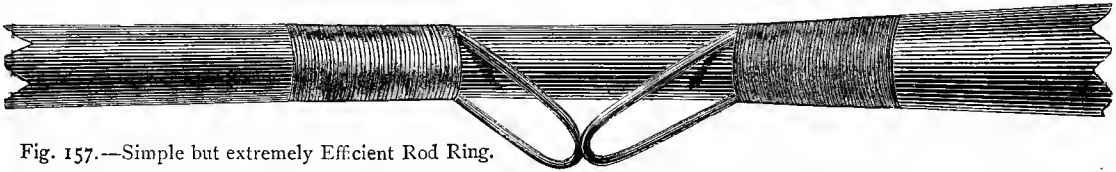


Fig. 157.—Simple but extremely Efficient Rod Ring.

John J. Carton

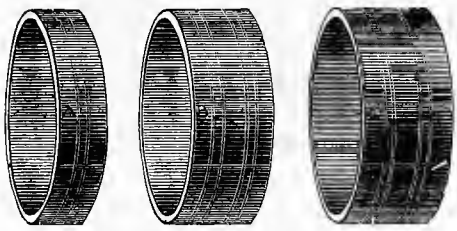


Fig. 156.—Ordinary Winch Fittings.

Fig. 160.—Top Rings.

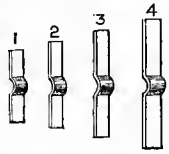


Fig. 164.—Ring Keepers.

Fig. 165.—Rod Ring.

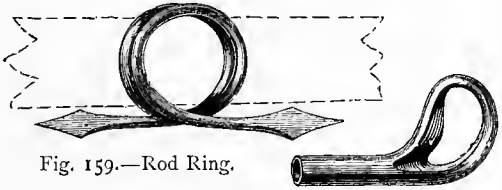


Fig. 159.—Rod Ring.

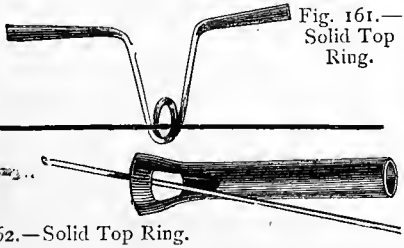


Fig. 158.—Rod Ring.

Fig. 161.—Solid Top Ring.

Fig. 162.—Solid Top Ring.

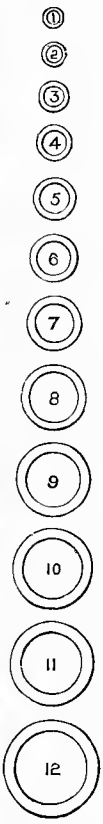


Fig. 163.—Brass Rod Rings. Nos. 1 to 12.

of; the line cannot get round it, or entangle. Fig. 159 is also easily made. The dotted lines indicate the mould round which the brass wire is twisted, and the rest of the illustration speaks for itself. Fig. 160 shows the top rod rings of various sizes, all easily made as before, and they are, though not the most fashionable, certainly one of most serviceable and easy to fix, and when this is the case I really do not see why more expensive appliances should be sought after. However, sought after they are, if only to increase the cost of a rod. Figs. 161 and 162 are two forms of solid rings, both to be recommended, if only on the score of their unbreakableness, and the fact that the line cannot entangle round them.

Of those rings which are not rigidly fixed, and are generally used for the fly rod, Fig. 163 gives a representation, and the numbers by which they are known to the tackle-maker. I need scarcely say that the largest is used for the butt of the rod, and they follow on to the point in decreasing gradation of size. They are fixed by ring-keepers, as shown at Fig. 164, the size numbers of which are also given. In attaching them, the keeper is slipped through the ring, until the latter lies in the indentation prepared for it, and the keeper is then whipped to the rod. Fig. 165 is another very satisfactory line ring, invented by Mr. J. P. Wheeldon, I think, and generally attached to the more superior Nottingham rods. The diagram, I venture to say, needs no explanation.

The remaining accompaniments for a completely fitted rod are shown in Figs. 166, 167, 168, and 169.

Fig. 166 is a spike or spear, which, in the case of a fly-rod, is extremely useful. If an entanglement of the line happens, the rod can instantly be fixed up-

right by driving the spear in the earth, which is much preferable to laying the rod down, because in the latter case you are so apt to tread on it. When the spear is not in use, a broad-headed screw is turned into the aperture. The spear is of iron, and should not be more pointed than is shown, for fear of accidents. I say this because I once was witness of a terrible piece of injury caused by a sharp-pointed spike. The angler slipped on the rocks, and the spear entered his thigh quite two and a half inches, and the result was a permanent lameness. Fig. 167 shows a rubber button which takes the place of the broad-headed screw in a pike rod. Its utility is very great when one is casting a spinning or other bait, from the fact that it does not slip when the end of the butt is placed against the stomach for its *point d'appui*. Fig. 168 represents a ferrule and cap in the place of either, or both, of the preceding, when the butt, as is the case with some fly-rods, is hollow, to contain one or more spare tops, which device is most convenient for the travelling angler, to whom economy of space is all-important.

Fig. 169 is a rough and easily made rod-stop when the worker has not a lathe to turn his stops. It is, of course, intended to keep the ferrules from being crushed when travelling. In addition to these materials, silk of several colours for whipping,—sewing silk will do,—and cobbler's and white wax and varnish are necessary. The composition of the last-named articles will be given presently.

The tools required by the amateur rod-maker need not be many or expensive; the ordinary carpenter's outfit will furnish most of them. A vice,—of wood is best,—is of paramount necessity. Files and rasps of

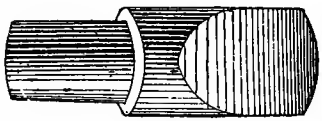


Fig. 169.—Wooden Stop for End of Ferrule.

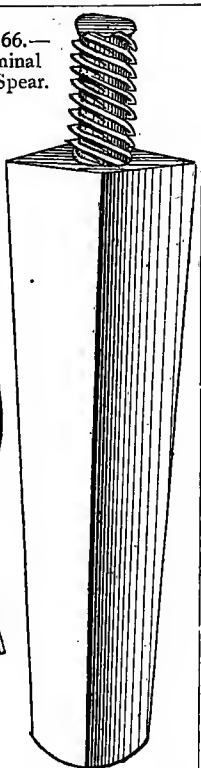


Fig. 166.—Terminal Rod Spear.

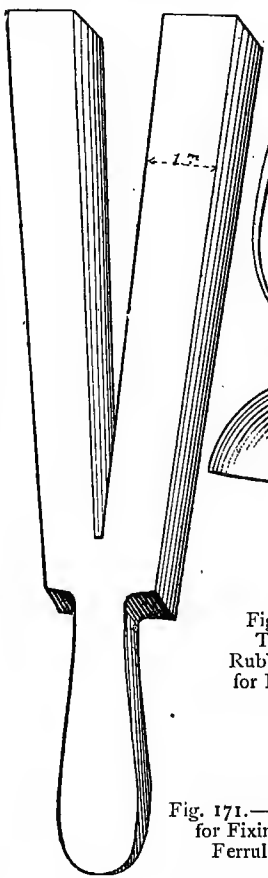


Fig. 171.—Tool for Fixing Ferrules.

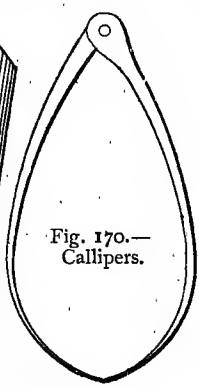


Fig. 170.—Callipers.

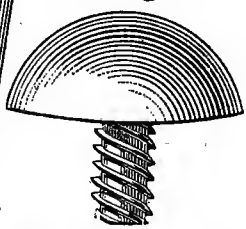


Fig. 167.—Terminal Rubber Button for Pike Rod.

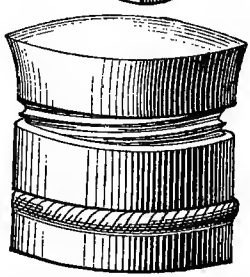


Fig. 168.—End Ferrule.

various degrees of cutting power, several planes, one or two of which should be small ones. Indeed, a small plane is very useful in rod-making, as are callipers also (Fig. 170); and a set of brush-maker's drills with centre-bit are indispensable. These latter are for drilling the holes for the admission of the small counters or dowels; and when there is no lathe, I know of no other method which can excel this one. How to do it will be considered presently. Sand-paper of various degrees of fineness, and some broken flint glass of good hard quality, complete the outfit so far as tools, except, indeed, one other invention of my own for driving on the ferrules, which is represented in Fig. 171. It is made of withy, and is used to get the larger ferrules and the large and small counters in their places. If the reader refers back to Fig. 153, he will immediately discern the utility of this simple tool.

I mentioned the desirability of white wax and varnish first. It may be useful if I give the composition of these necessary articles before going further. White wax, or rather a colourless wax, is very useful for application when it is intended to preserve the colour of a green, pink, or other delicate coloured whipping. It is thus made: Take 2 ounces of the best white resin, and ¼ ounce of white wax (from the chemist's), simmer them in a pipkin for ten minutes, add ¼ of an ounce of tallow, and simmer for a quarter of an hour, then pour the mass into a basin of water and work it between the fingers till it is perfectly white and pliable. The more you work it the whiter it becomes. The best varnish I know of for rods, and one which gives a high polish, is made from shellac, spirits of wine, and a little gum benzoin.

Add about ½ an ounce of the latter to a pint of the shellac varnish, but mind it is pulverised before adding. Coachmaker's varnish is very good over a stain, but I prefer the colour and grain of the wood to show in the rods I make.

VIII.

ROD MAKING AND MENDING.

THE requirements in a good rod may be summed up in three words—strength, pliability, and relative lightness. A good kind of fly-rod for small streams is recommended by Foster in the "Scientific Angler," as follows: Three joints or parts, each 3 feet 6 inches in length, the butt to consist of hickory or washaba, the middle joint of best washaba, greenheart, or blue mahoo, the top of snakewood or best jungle cane, the whole being 10 feet 6 inches in length. The ferrule at top of butt should be $\frac{6}{16}$ inch inside, and the one at the top of middle joint $\frac{1}{4}$ inch. The actual weight of a rod of this description is very small.

Fig. 172 shows the sizes of the butt, three joints, and ferrules, of a fly-rod I constructed very recently and the procedure of which operation I will presently describe. It is made entirely of greenheart, excepting the top, which is of jungle cane.

I desire the reader to carefully study the illustration. Keeping our attention fixed on the figure, let us make the rod together.

The Butt.—This is of greenheart sawn square with a taper to it. The sawing is done by the timber merchant. We take the piece of wood which is straightest in the grain, and without a twist, and cut it to a 2 foot 6 inch length. With the plane it

now becomes necessary to transform it from a square to a round, tapering from the diameter of the butt at A to that at B. After the plane has done its work, you must have recourse to the rasp, ever and anon raising the butt to your eye to detect any inequalities or faults in its straightness as you glance along it. Various degrees in the roughness of the rasps and files are to be successively used until the butt is round and tapering. Then smooth all with sand-paper, also of successive degrees of roughness, and finally scrape the butt very carefully with broken glass, so as to get a perfectly smooth surface free from dust, for the sand-paper alone always leaves some powder from its own surface and the wood, and the varnish does not take well over it.

You are now ready for the ferrules of the butt; but instead of pausing to fit them, I in my own working invariably go on to prepare the other joints. These are, of course, treated in a precisely similar way, except the top, and their length measurements are as follows: 2nd joint, 2 feet 3 inches; 3rd joint, 2 feet 2 inches; 4th joint, 2 feet 5½ inches; top, 2 feet 4 inches. Of course, the wood is prepared to receive the counters, as shown at C and D, chiefly by aid of the rasps, when the operator has not the advantage of a lathe. I, however, find no difficulty. The diameter of the various parts of this rod are as follows at the ferrules inside: 1st ferrule, E, ½ inch; 2nd ferrule, F, $\frac{6}{16}$ inch; 3rd ferrule, G, $\frac{5}{16}$ inch; 4th ferrule, H, $\frac{3}{16}$ inch; and the top, I, tapering down to about $\frac{1}{16}$ inch. The diameter of the butt end, A, is $1\frac{1}{8}$ inch.

The measurements of Fig. 147 (see also Fig. 153), a pike rod, may conveniently be as follows when finished: Butt, 3 feet 3 inches; 2nd joint, 3 feet

Folding Plate No. 4, containing Fig. 172, to face page 136.

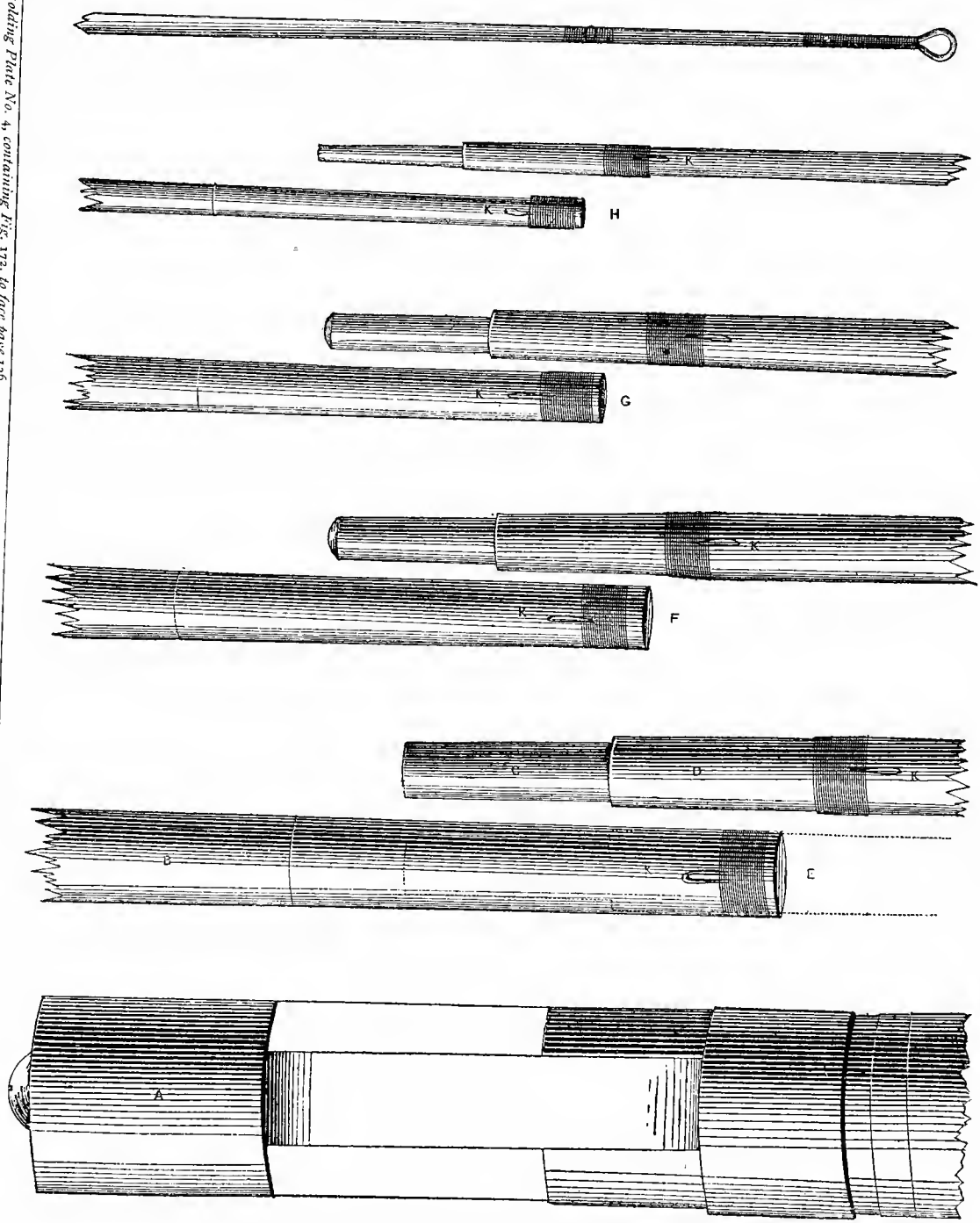


Fig. 172.—Butt, Ferrules, Counters, and Top of Fly Rod. Full Size.

3 inches; 3rd joint, 3 feet 3 inches; top, 3 feet; diameter of butt, $1\frac{1}{8}$ inch; diameter of 1st ferrule, inside, $\frac{9}{16}$ inch; diameter of 3rd ferrule, inside, $\frac{5}{16}$ inch. The counters are, of course, made to fit the ferrules.

The next job is to fit the ferrules, and I cannot be too emphatic in enjoining the greatest nicety and care. Do not hurry, whatever you do, and see that the fitting is true in every particular.

Let us begin with the first ferrule, at E. Do not cut away the wood to enable you to fix the ferrule flush with it, for by so doing you weaken your joint. In place of doing so, let the ferrule stand out on the wood. Having shaved and scraped your joint end till it is approximately small enough for the ferrule, put that part of the business on one side for a little time, and attend to another matter—namely, the boring to admit the counter, C, Fig. 172, into the joint end, as shown by the dotted lines in Fig. 153.

To do this, take a piece of waxed silk, and tightly bind it round the end of the joint, finishing off with a half hitch. Place the joint in the vice, and select the smallest size brushmaker's drill, and bore into the centre of the wood just so far as the small counter is long, measuring by your drill as you proceed. Having bored with the small drill, take it from your centre-bit, and substitute a next size, and so on till you have got the right one. Now, having prepared the wood for C and D, put D on in this way: Wind round the wood a thread of waxed silk several times in a wide helix (or Le Page's glue is equally good), and fixing the joint in your vice—having previously provided that the ferrule will go on with a little force—drive the ferrule on with the tool shown at Fig. 171, by resting it on the ferrule and striking it with the

hammer. I you cannot quite get the ferrule home, hold it over a gas jet for a second or two. The heat will melt the wax on the thread, and a blow or two more on the ferrule's top completes the business. C is to be served in a precisely similar way; and if it be desired, a little bolt can be let through into the wood, and filed off flush to render additional security.

Now to return to B and E. Having fixed the counter, you can see if the small one, C, fits the boring. It should do so quite easily but truly; not too easily, or the joint will rattle when the rod is in use, and not too tightly, or when the joint is wet there will be difficulty in getting them apart. Of course, the counter should go right in to the shoulder.

If this is quite satisfactory, the ferrule, E, may be put on in the manner first described. It should go on to the wood just so far as the diagram indicates by its relation to the counters above. The dotted lines in Figs. 172 and 153 will show what I mean. The same course is taken with each joint. The winch fittings are put on in a precisely similar way.

The next thing to do is the whipping on of the loops, K, K, K, etc. These are simply brass loops of wire (see Fig. 173) fastened at the extremities. The top of the rod may be of greenheart or cane.

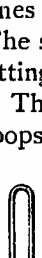


Fig. 173. Rod Loop.

For a rod such as I have endeavoured to describe, the rings—of the pattern shown at Fig. 163—are twelve in number, and are thus disposed on the rod:

1st joint (butt), 1 ring; 2 feet from end of butt, size No. 12.

2nd joint, 2 rings: 1st, 1 foot from larger end; 2nd, 1 foot from smaller end, size No. 8.

3rd joint, 2 rings: 1 foot apart; top one just below the ferrule.

4th joint, 3 rings: 1st, 10 inches from larger end; 2nd, 9 inches from 1st; 3rd, 8 inches from 2nd.

Top, 4 rings, besides top ring: 1st 5 inches; 2nd, 7 inches from 1st; 3rd, 6 inches from 2nd; 4th, 5 inches from 3rd; and top ring 3 inches from 4th round ring.

The places for the rings on the pike rod, Fig. 153 (see also Fig. 147) are as follows:—

1st joint, 1 ring: 2 feet 6 inches from end of butt.

2nd joint, 2 rings: 1st, 16 inches from counters; 2nd, 19 inches just behind ferrule.

3rd joint, 3 rings: 1st, 12½ inches; 2nd, 12½ inches from 1st; 3rd, 10 inches from 2nd.

Top joint, 4 rings, besides top ring: 1st, 9 inches from end of counter; 2nd, 9½ inches from 1st; 3rd, 7 inches from 2nd; 4th, 5 inches from 3rd; top ring, 5 inches from 4th.

In binding the rings, the silk should be very evenly laid on, and fastened off with two half-hitches. The varnish before referred to is the best, and should be put on with a camel's-hair brush quite half a dozen times—thinly each time. The top ring is whipped first with fine copper wire for a distance of half an inch, and then with silk.

The polishing of the entire rod now demands a word or two. Having got the wood as smooth as you can make it with scraping, take a piece of coarse flannel and spend an hour in rubbing each joint till the friction has imparted a perfectly smooth surface. Then make a pad of cotton-wool and thin calico, and apply the varnish as French polishers do, with even and careful strokes. Plenty of patience is required, but the result will surpass your expectation.

One thing I forgot to mention. Before fixing your ferrules (if they are not bronzed by the maker) bronze them yourself with a solution of bichloride of platinum—one part to ten of water. Usually, however, the makers bronze them ready for use.

Though the joints I have recommended are those in regular use, there is a patent lock joint made by Messrs. Allcock, as shown at Fig. 174, which is simply the ordinary bayonet fastening adapted for the purpose. These fittings can be obtained from Mr. Currell, of 6, *Jewry Street, Winchester*, with the other materials.

It has been found that the ordinary hardwood butt of a rod is prone to blister the hands when fly-fishing; and to obviate this, various devices have been resorted to. The best of all is that illustrated in Fig. 175. It consists of fine cane bark wrapped round the butt very closely. It gives a firm grip, and from its varied corrugated surface relieves, and changes, and distributes the pressure. My hands are exceptionally liable to blister, and I always suffered greatly till I resorted to this device, so, therefore, I can recommend it from experience. Leather is very good also, and I have used a piece of india-rubber tubing slipped on the butt with distinct advantage.

One kind of easily made fly-rod must not be forgotten. There are no ferrules to it except those which secure the winch; and if the Hardy's patent winch fittings are employed, no ferrules of any kind are needed. I allude to the Castle Connell spliced rod.

This rod is in two pieces of greenheart; and when it is desired to put it together for fishing, it is only necessary to place the two sections of the splice

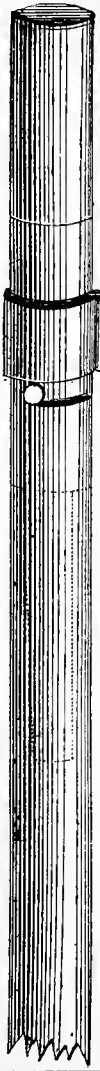


Fig. 174.—Lock-fast Joint.

Fig. 175.—Cane Handle for Rod.

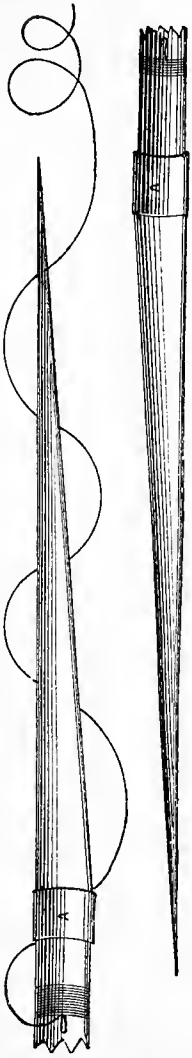


Fig. 176.—Splice of the Castle Connell Rod.

Fig. 177.—The Castle Connell Rod Spliced.

shown at Fig. 176, and whip them in wide coils, as Fig. 177. I said there need be no ferrules, nor need there, but two are sometimes added at A A, Fig. 176, in which to place the thin ends of the sections, while the splicing is going on. This is a most useful rod, and the principle, I need scarcely say, is applicable to any and all rods.

A word or two in conclusion about mending a rod when broken. Of course, if a man can make a rod, he can mend one. However, there are those who will not care to make one, and may yet want to mend one if broken, and for such I offer Fig. 178. Let A represent the fracture, B will exhibit the method of mending. The sections must be cut like C; and be careful that they are slightly *bellied* as there shown, and not with perfectly flat surfaces; and having fitted them together lay on a strip of quill (shown at D) on each side. Then whip with fine silk well waxed closely and very evenly. This looks a simple matter, but considerable care is necessary, and everything depends on your exactitude and neatness.

This chapter would be incomplete, were I entirely to omit mention of the beautiful rods and their appliances I have met with in America during the last season. The chief rod-maker of the world may fearlessly be said to be Mr. Leonard, who resides within easy train service of New York, and who has carried the construction of the split glued-up cane to a marvellous degree of perfection. His rods are made from bamboo; and so great is his fastidiousness in the selection of his material, that often immense shipments of many thousands are passed over by him, ere he finds suitable lots. The rods he makes are hexagonal in shape (Figs. 179 and 180),

Fig. 179.—Hexagonal Bait Rod.

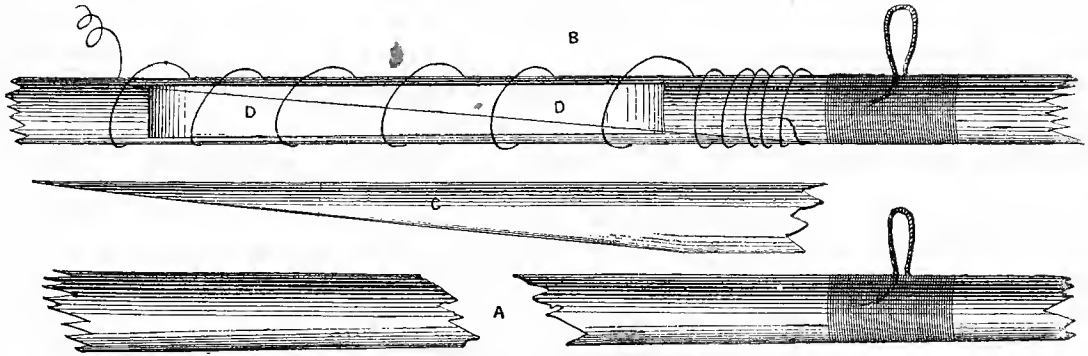


Fig. 178.—How to Mend Broken Rod.

Fig. 180.—Hexagonal Fly Rod.

and built of six strips from butt to tip, each strip being a triangle of equal sides, which is the best and strongest form for the wood. This has been proved by Mr. Leonard by actual tests.

Fig. 181.—Patent Split, Water-tight Ferrule.

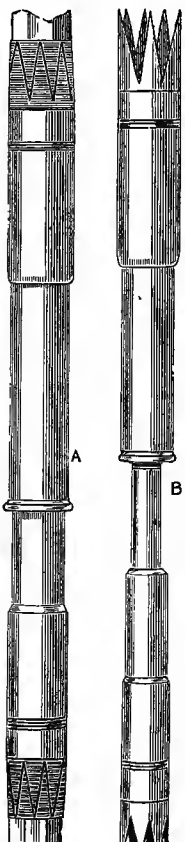


Fig. 182.—Malleson's New Safety Ferrule.

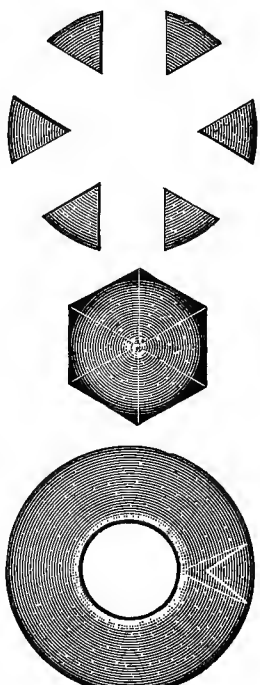


Fig. 183.—Sections of Split Cane Rod.

Fig. 183 shows the method of cutting the round cane. A rod with less than six strips is found to sacrifice the natural enamel of the cane; and with more than six, the strength is diminished,

there being too many glued joints. The effect of this is to make them liable to twist at the ferrules when taking the rod apart; and the tips of the strips, if there be more than six, must be tapered to a mere shaving, and hence there is much more glue than wood.

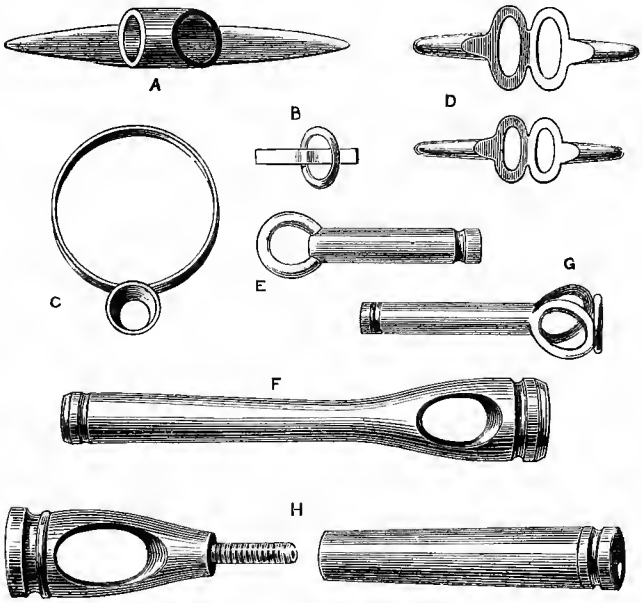


Fig. 184.—Rings and Tips.

All these rods are fitted with a patent split ferrule (Fig. 181). A shows the split, and B the same ferrule whipped with silk in its place. Now, to understand the advantage of this, it must be borne in mind that the junction of the ferrule with the wood, with a *solid* ferrule, is the weakest point of all rods, especially

bamboo and cane generally, owing to the elasticity of the cane and the unyielding bearing of the brass or nickel. Every device, therefore, which obviates this is welcome, and the split ferrule seems the solution to the difficulty.

Another beautiful ferrule is also shown in Fig. 182, where there is actually no bearing at all at the ends of the ferrules. This, if anything, is a superior idea to that on the Leonard rod. It simply consists in sawing the ends as shown, filing them down and binding them. See A and B, Fig. 182. This admirable contrivance, whose utility is only equalled by its simplicity, is the invention of Mr. F. Malleson, of Brooklyn, U.S.A., who has registered the pattern and possesses the sole right to it. Messrs. William Bartleet & Sons, Abbey Mills, Redditch, are the sole agents for the sale of his rods in the United Kingdom and Europe, and from them every information respecting this excellent ferrule can be obtained.

The rings and tips with which every rod of any superiority is fitted in America, are also indicated at Fig. 184, and need no special description. A is a solid ring, of brass or nickel; B shows the ring and keeper used for fly-rods; C is another form of A, and intended to be slidden on the rod when making; D shows rings stamped out by machinery, and they are very neat and serviceable; E is a tip ring over which entanglement is impossible; and F, G, and H are equally ingenious.

CHAPTER IX.

FLY-MAKING—NECESSARY APPARATUS—DYEING FEATHERS—DYES AND STAINS—HACKLE FLY—PALMER FLY.

S fly-fishing is the fine art of all angling, so fly-making is the fine art of all tackle manufacture. From the tiny quilled gnat, in use in the Hampshire streams, costing perhaps a penny, to the gorgeous Shannon salmon fly, worth say 5*s.*, the demands on the maker's taste, knowledge, skill, and manipulative deftness are great and ever-varying. Yet, if the reader have mastered what has been said in reference to coarse fish-tackle in preceding chapters, the difficulties are not insuperable. The art of fly-dressing is a most beautiful one, and more than repays the care of the amateur as he goes along creating things of beauty: moreover, it grows on his inclinations; and I personally know several gentlemen, and even *ladies* whose spare time is filled up most agreeably—and to their own profit, be it said—by fly-making. Ay! and their flies outshine in some particulars even the finished productions of professionals, especially in faithfulness to nature; for, of course, trout flies in all cases should be as nearly as possible imitations of the insects on which trout are known to feed. The salmon fly is, of course, *not* an imitation; rather let us term it a poem of colour, the

beauty and efficacy of which will vary with the taste and creative skill of the maker.

It seems scarcely credible that, notwithstanding the fact that fly-fishing, and presumably fly-making, has been in vogue more or less for two thousand years, such scant reference has been made to it in the writings of the old-world authors. With the exception of Martial, who simply says—

> "Who hath not seen the *scarus* rise,
> Decoyed and caught by *fraudful* flies?"—

there is no one to be quoted but Ælian on the art of fly-making amongst the ancients.

In his "De Natura Animalium," this writer, however, says: "The Macedonians who toil on the banks of the Astræus, which flows midway between Berea and Thessalonica, are in the habit of catching a particular fish in that river by means of a fly called *hippurus*. A very singular insect is it; bold and troublesome, like all its kind; in size a hornet; marked like a wasp, buzzing like a bee. The predilection of the fish for this prey, though familiarly known to all who inhabit the district, does not induce the angler to attempt their capture by impaling the living insect. Adepts in the art had contrived a taking device (*captiosa quædam machina*) to circumvent them, for which purpose they invest the body of the hook with purple wool, and having two wings of a waxy colour, so as to form an exact imitation of the *hippurus*, they drop these abstruse cheats gently down stream." The scaly pursuers, who hastily rise, and expect nothing but a dainty bait, are immediately fixed by the hook. According to the "Bibliotheca Piscatoria," this passage was first pointed out by Stephen Oliver, author of "Scenes and Recollections

of Fly-fishing," and I have transcribed it because it so clearly identifies the existence of the subject before us in the earliest times. Moreover, it tells of the method of using the lure—viz., "they drop these abstruse cheats gently down the stream." As the artificial fly was thus clearly a "floating fly," there is a strong similarity between this method and that pursued by anglers of to-day.

I can find nothing, besides that which has been already quoted, in the ancient writers referring to fly-fishing. The style of fish-capture practised by the Egyptians does not seem to have been fly-fishing, though winged insects are to be found represented on their bas-reliefs as hovering over the water of fish-pools and streams. The trident or bident—or, in modern phraseology, the fish-spear—seems to have been the favourite weapon; so that, so far as a sportsmanlike spirit is concerned, the Macedonians must have been a far superior set of people.

In consequence of this dearth of information, a great hiatus occurs in the history of fly-making. Not until the first book on fishing in the English language was printed, is the subject again to be traced. The first book, the reader needs scarcely to be told, is the treatise on "Fysshynge wyth an Angle," included in the "Boke of St. Alban's," written by her prioress-ship Dame Juliana Berners or Bernes, to the intent that "youre aige maye the more flowre and the more lenger to endure." This fair angler-author advises fishing for trout in "lepying tyme," with a "dubbe;" and at the conclusion of her treatise she gives directions for the making of twelve sorts of "dubbes for troughte and graylynge." The details of one or two of these will suffice for subsequent comparison with those I

shall speak about presently. "The doone fly: the body of the doone woll (dun wool), and wynges of the pertryche (partridge). Another doone (dun) fly; the body of black woll, the wynges of the blackest drake and the jay, of the wynge and under the tayle." This work bears on the title-page of the original edition, "Emprinted at Westmestre by Wynkyn de Worde, the year of Thyncarnacon of our Lord 1496."

So much for the history of the artificial fly. Let me now, before plunging into the severely practical part of the subject, give the beginner one or two words of friendly counsel. First, be patient. If you do not at first succeed—well, you know the rest. Never be satisfied with inferiority; neatness is even more necessary to the appearance of an artificial fly than to that of a watch. Study nature, if possible, for the right shades; but if you are working in winter-time, obtain the best patterns from such makers as Little, of 15, Fetter Lane, and set to work steadily to imitate them. Select all your colours by daylight, if you can; and, lastly, but not least, keep clean and *steady* hands: by the latter, I mean, don't come in fresh from cricket or any violent exertion, and fancy you can tie a tiny midge with any neatness, because you will be disappointed.

Now, as to apparatus. A strong deal table, free from draughts and covered with white paper, is indispensable; a few wine-glasses, without the foot, as used by watchmakers, are also useful. Then you should have a fly-vice. A few years ago these were not used; but the increased delicacy necessary in the smaller floating flies (a term to be explained presently), really renders a good vice a very valuable aid. It is true, one of the best fly-tyers in the world—the chief at

Messrs. Allcock's, Redditch—ties without such adventitious help; but then he is an exception. The kind I use is as Fig. 185, and is made by Mr. Ogden, of Winchcomb Street, Cheltenham, than whose father there was probably no cleverer fly-maker alive. Fig. 186 shows a different make.

A pair of sharp-pointed scissors, such as are shown in Fig. 185, are also indispensable; for, after a fly is put together, it is often found that some loose fibres mar its symmetry and neatness, if left as they are. Moreover, the fine point of the scissors is necessary to clip off the whipping silk, of which, it often happens, two or three different colours are employed. A pair of spring tweezers (Fig. 187), which are easily fashioned from a length of steel wire, or can be purchased for a few pence, is also required for the purpose of attachment to such part of the flies,—whether for salmon or trout,—as are occasionally required to be fastened together ultimately, but kept apart during the process of making. When in use they are simply nipped on this or that feather, till the latter is required to be worked in the body of the fly.

A pricker (Fig. 188) concludes the list of apparatus necessary to the fly-tyer; and this, if the beginner chooses, is easily made at home, from a good stout carpet needle. Its use is to tease out the fibres of the fur bodies of some flies, or to arrange the set of the fibres of the wings, etc. It is also very useful when, by some chance or other, a knot has been wrongly tied, either in the whipping-silk or gut to which the hook is tied.

This instrument, then, concludes the list of apparatus, and it now becomes our task to turn to the *materials* necessary to the making of the artificial fly.

Let me, at the outset, premise that there is no hard-and-fast rule as to these materials; and it is in the selection of them that the most celebrated fly-makers excel. They may be derived from the furs and feathers of all kinds of animals—from the patient ship of the desert, the camel, to the mighty condor of the Andes. Even the scales of fishes themselves furnish capital wings for some of the daintiest of our clear-stream flies; and once and for all be it said, the taste and sense of suitability for imitation in the maker is the only guide. Of course, *generally*, I may enumerate those materials which are most in use, for the benefit of the learner; but after he has gone carefully into the processes of this delightful art, he will begin to select his materials himself; and though probably he will continue to follow the formulæ I shall give in a future chapter for the chief flies, yet he will by no means consider himself bound by them if a softer or truer-coloured material presents itself. Briefly, then, the stuffs most in use, and of which a goodly stock should be collected at the onset, are hackles from the necks of blue-dun hens, especially those with ginger-coloured edging; hackles from the necks and near the tails of game-cocks, both red and furnace (*i.e.*, tinged with black); hackles from the neck of a black Spanish cock; scapular feathers of the woodcock and grouse (of course my readers remember that "scapular" relates to the shoulder), and the brown mottled feathers of the back of a partridge. The wings of the starling are in great request for the dun flies, and a plentiful assortment is desirable; as are also feathers of the landrail, hen pheasant, and dotterel (when procurable), the grey and brown mottled feathers of the wild drake, and the harl of

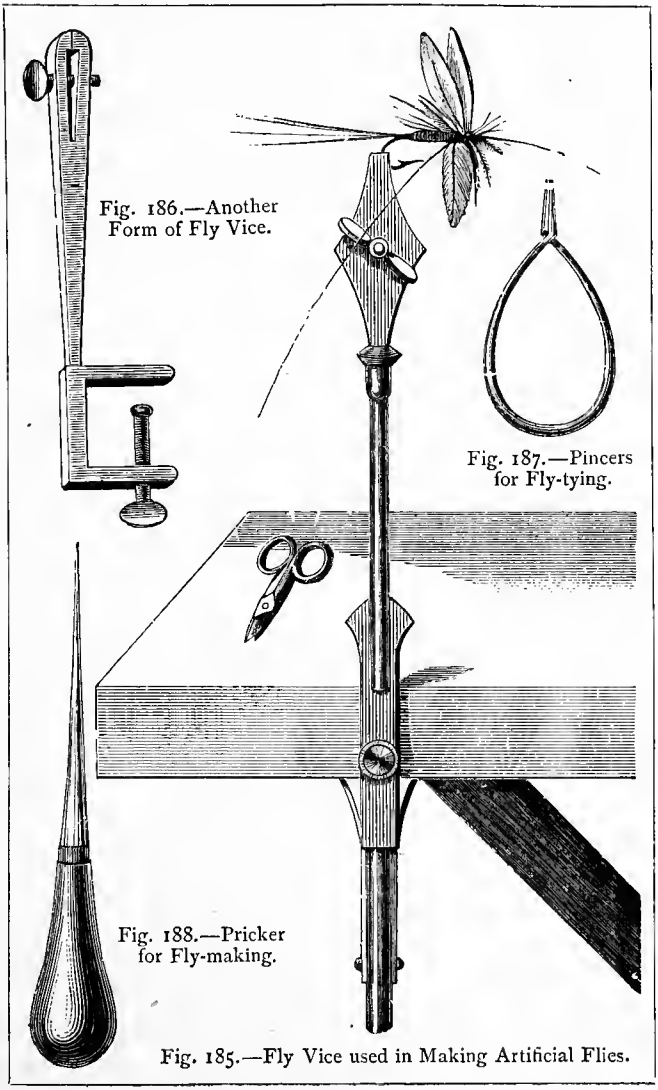


Fig. 186.—Another Form of Fly Vice.

Fig. 187.—Pincers for Fly-tying.

Fig. 188.—Pricker for Fly-making.

Fig. 185.—Fly Vice used in Making Artificial Flies.

ostrich, and the eye feathers of the peacock. With these the tyro may make a start, but only a start; for if he, as he should, make his flies after nature, he will require delicate shades, which in some cases he will require to produce by means of dyes—which I shall enumerate directly. His "dubbing"-bag should contain everything conceivable possessing short fibres —*i.e.*, the furs of hare, rats, moles, rabbits, and all the mohairs or lambs'-worsted, etc.; silks and horsehair of all degrees of fineness and colour—the latter produced in some cases artificially. These dubbings are for the bodies of the flies, and are derived from all sources. Straw, india-rubber, and cork are also not to be forgotten; but especially should the silks be diversified and plentiful.

Now, as I promised above, I think, before proceeding to make an artificial fly with the reader, I had better give some recipes for dyeing such feathers, etc., as, while possessing elasticity and texture, are not of the requisite shade. This often happens; and, as an instance in point, the artificial May-fly may be mentioned. Now, the nearest feather as an imitation we possess, is that of the American wood-duck, or even our own wild drake; but there is this difference: whereas these feathers are mottled black and white, the May-fly itself is tinged a yellowish green. Obviously, therefore, a suitable stain is here necessary. These given have in each case been verified by the writer, and are given by Mr. Alfred Ronalds, in his "Fly-fisher's Entomology" (Longmans) — a work which I advise all who seriously desire to be good fly-dressers to procure.

To Dye White Feathers Dun Colour.— Boil the feathers in a solution of alum—one ounce to a pint of

water—for a few minutes; this rids them of their natural grease, and is indeed an excellent mordant for all feathers. Take then a pint of water and place them in it over a slow fire, adding sumach and fustic till the required tint is produced. Add copperas if a blue dun tint is required.

To Alter Hackles to a Deep Brown.—Copperas size of a filbert in a pint of water, boil it, put in feathers till they appear of the proper shade. You can remove them occasionally for examination.

I spoke just now of the dyeing of the mallard, drake, or wood duck's feathers for the May-fly. This is how it is done: Boil in the alum and water, spoken of in the formula for dyeing white feathers. Then boil with fustic, subduing the brightness of the yellow with nitrate of copper. The feathers should not remain too long in the solution, or they become brittle. I find that dipping them in paraffin oil renews the gloss of which the alum and dye have deprived them.

To Stain Feathers an Olive Dun.—Make a strong infusion of the outside leaves of an onion, by allowing the ingredients to stand warm by the fire for twelve or fourteen hours. If dun feathers are boiled in this they will become olive dun in hue, and white feathers a yellow. If a small piece of copperas be added, the latter colour will become a useful muddy yellow, approaching to a yellow olive dun, according to the amount of copperas used.

To Dye Feathers Dark Red and Purple.—Take Brazil-wood dust and logwood infusion—the latter is easily made by infusing a handful of logwood chips in three pints of water. Immerse the feathers, and mingle the dust till the requisite red tint is arrived at.

For *purple*, dip the feathers in a solution of chloride of tin.

To Dye Red Feathers Scarlet.—Boil a teaspoonful of Brazil-wood in a half-pint of water, simmer the feathers for half an hour in this infusion. Then immerse in a solution of chloride of tin, to which a little free hydrochloric acid has been added to increase the tone. Wash thoroughly and dry.

To Dye Red, Amber, and Brown.—Boil in alum and water, as before advised. Then boil in an infusion of fustic (two teaspoonfuls to a pint of water) till the yellow colour seems as deep as can be expected. Set the colour with a solution of nitrate of tin, in which a little common salt has been sprinkled.

Blacker, the late celebrated fly-tyer of Soho, wrote a capital little work on fly-dressing—that is "capital" to all who knew the rudiments of fly-dressing, and supremely mystifying to the completely uninitiated—and in it he gives several recipes of worth, which I reproduce here, having tried them all with success.

For Dyeing Feathers Blue he recommends one to fill a pipkin with soft water, put it on a slow fire, and add a teaspoonful of paste blue. [This is out of date with most colourmen; but a good London firm will be able to execute an order for it.] Stir it well; when it is more than lukewarm take a teaspoonful of cold water, drop into it twelve drops of oil of vitriol, put this in your blue dye, and then put in quarter ounce of pig's wool or mohair, previously cleaned in the alum mordant. Boil it slowly for fifteen minutes, take it out with a piece of wood, and immerse in a pan of cold water. "Dry your stuff, and your colour will be fine," says Blacker.

For Dyeing Feathers Red.—Here is another dye

which is said to be lasting; a statement I fully believe, for I have at this moment a red spinner fly which has been made some years and used a great many times. Put in your pipkin water as above, boil in it two handfuls of Brazil-wood with your stuffs half an hour, take it out and cool your dye with a little cold water, before you put in the oil of vitriol (quantity as before, or a little more), then put in your stuff, and let it simmer over a slow fire one hour, take it out, and immerse it immediately as above; dry it quickly.

For Claret Dye.—There is considerable difficulty in getting a natural claret; a tint so essential to such flies as the Turkey Brown—a grand killer during the height of summer. Add first to the Brazil-wood half the above quantity of logwood, and in the second boiling put in a piece of copperas the size of a pea, with a bit of pearl-ash the size of a nut. Boil it one hour. Cool the water, in all cases, before putting in the oil of vitriol.

To Dye Feathers Yellow.—This colour is, of course, indispensable in the manufacture of the yellow Sally. Water as above. Put in a handful of bruised Persian berries and boil them one hour, then add two tablespoonfuls of turmeric. Put in the acid and boil the stuffs—not more than ¼ oz. at a time—for half an hour. immerse in cold water and dry. By adding a teaspoonful of Brazil-wood a bright orange is procured.

To Dye Feathers Brown.—Water as before. Boil a good handful of walnut rind and a small quantity of Brazil-wood and of logwood, half an hour together. Put in your mohair (or other material), cooling the liquor before the acid is put in. Boil it half an hour longer, and the colour will be lasting. For a *cinnamon, or yellow fiery brown*, dye your materials yellow first

Add in all the above ingredients according to the amount of material to be dyed.

To Dye Feathers Black.—Water as before. Boil two handfuls of logwood one hour; add a little sumach and elder bark. Boil these ingredients half an hour, and put in your feathers for half an hour. Take them out, cool your liquor, dissolve a bit of copperas the size of a Spanish nut and put it in your liquor adding a little argill and soda. Boil for half an hour; taking out the materials occasionally, as the air contributes to the colour, and your black will be the colour of the raven's feather.

Fig. 189.—Bunch of Feathers for Fly-making.

In addition to, and in a great many cases in substitution of, the above recipes, I must here mention Messrs. Judson's little bottles of dyes—mostly of aniline extraction. They impart most delicate shades if carefully and skilfully used. I find it is necessary to first boil in the alum solution and wash in pure water, and then, preparing the solutions according to the directions on each bottle, the feathers, etc., are immersed and afterwards rinsed in clean water. They should, in each case, be tied up neatly in bunches, as in Fig. 189.

A good wax, for preserving the silk with which each fly is tied, is very desirable. Some fly-tyers use cobbler's wax; but this from its dark colour is highly objectionable when making small, bright, or delicate coloured flies. I make a white wax which is almost invisible on the brightest silk, as follows: Take four

ounces of the best white resin, half an ounce of fresh lard, and a quarter of an ounce of white wax. Crush the resin, and let it melt well in a jar over a slow fire, stirring it all the time with a stick. Add the white wax and then the lard; let it simmer for a quarter of an hour; then pour it out into a basin of cold water, and knock it well with the hands till pliable, putting it for half an hour before the fire. It cannot be too much worked up. Cut it up in small pieces and keep in water. You have here a wax which is superior to any I have ever worked with before or since I had the recipe; and it takes the spirit varnish when you use it better than all other preparations.

To Make a Plain Hackle Fly.—I have already said that the imitation of Nature is the basis on which the good fly-dresser rests. Let the reader get Ronalds' book if he cannot get the actual insects to copy from; in it he will find capital representations of all the paincipal flies in use in England, with the imitation and materials of manufacture, printed in colours. Of course, in these pages I can only carefully detail the processes by words, which, howsoever well done, are inferior to a lesson in fly-tying by a competent hand. The exclusiveness of the tackle trade, however, precludes the latter. I once offered five pounds for a lesson or two in salmon fly-making, and was refused; and therefore the beginner must give his best attention to what follows. I shall first direct his attention to the making of a simple "hackle" fly, which, in itself, is not an imitation of any particular insect, but is probably supposed to represent a fly buzzing on the water. By way of explanation I may say that a "plain hackle fly" is one made by twisting a hackle of almost any colour round the shank of a whipped

hook, securing it at the bend end. Here, however, is a detailed account of its making: Fix your vice securely by its clamp on the table, and place in its jaws a medium-sized hook; let the bend of the hook be to your left, and the end of the shank to your right hand, the back of the shank being upwards. Take your waxed silk in your right hand, between finger and thumb, and with your left pick up a link of gut. Crush the end of this for some quarter of an inch between the teeth, that the uneven surface thus produced may be held the tighter by the waxed silk. Place the gut in position *under* the shank, and holding it and the end of your silk firmly, rapidly whip the hook and gut together with the right hand, taking three or four turns, according to the length of the hook shank. Take one half-hitch, and you have now accomplished the first operation in all fly-tying—namely, the attachment of the hook to the gut. Now take your hackle feather, and having stripped it of the downy fibres on each side of the quill down to its root, place it against the shank of the hook on the side nearest you, with its root pointing towards the bend of the hook; then, and in the same direction whip the silk three times sharply round the hook, gut, and root end of the feather, and cut off with your scissors any point that may remain. Having done so, take the feather by its point, between the thumb and forefinger of the right hand, and wind it in close laps five or six times—the number to be proportioned to the size of the hook and fly—down the shank towards the bend; then make two laps of the silk over the point of the feather. Cut away with your scissors what remains uncovered by the silk of the point of the feather; and, lastly, waxing your silk afresh, fasten it with two loops,

or invisible knots, just where the bend begins, or opposite the barbed point of your hook. During these operations the silk should be kept well waxed. Fig. 190 indicates the appearance of this your first artificial fly. Make at least a few dozens of these, until you can finish neatly and quickly.

To Make a Palmer Fly.—The next step in Tackle-making is the manufacture of a palmer. Now the prototype of a palmer is not a fly, but the larva of the *Arctia caja* moth, and a frequent visitor of our gardens, where his black and ruddy brown furry coat makes him easily known. It will be observed that the

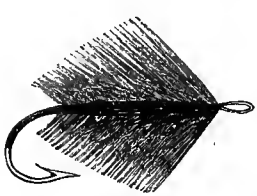


Fig. 190.—Hackle Fly.

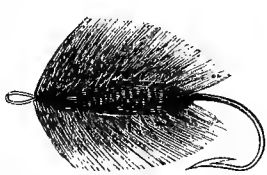


Fig. 191.—Palmer Fly.

hackle fly is without a distinct body, whereas the palmer has one. Shipley has some capital directions for this fly, made in several different ways, and I quote here his instructions referring to the red palmer. The first operation—namely, that of attaching the gut to the hook by whipping waxed silk round hook and gut, is performed according to the instructions given as to the making of the hackle fly. Then take your hackle feather, prepared and placed as described, and lap your silk once round it and the shank. Place the thick end of your harl or herl,—for in making this fly a peacock's herl should be used,—by the side of your hackle, and whip your silk round the herl, hackle, gut, and hook two or three times, according to the

size of your hook and intended fly. Then cut the thick ends of your hackle and herl off, wax your silk anew, and lap the herl five or six times, each lap close on the other, towards the bend of the hook. Hold your herl tight between the left forefinger and thumb towards the bend of the hook, then take the point of the hackle feather in your right-hand fingers, and wrap it thickly five or six times over the herl in the direction of the bend. Make two laps of your silk over all, cut away the remaining point of the hackle feather, then wrap your herl farther on towards the bend twice round the hook; make one lap of silk over the herl, fasten and cut away all that remains of it. Then you have your palmer, a representation of which is given in Fig. 191.

John J. Carton

CHAPTER X.

FLY-MAKING—TROUT FLIES FOR DIFFERENT SEASONS.

THE following directions are, it is proper here to say, based upon the principles of fly-making which obtained amongst all of the old-time fly-makers, and necessarily of course their descendants, to a greater or lesser degree. To be particular, the directions which follow instruct the reader to make his fly from the head to the tail, which, on the face of it, would seem the most natural plan decidedly, and a great number of fly-makers at the present time follow this plan. I did myself till quite recently; and I am convinced that for very strong work no other way can equal it. Therefore I retain the following as efficient; though in the latter part of this chapter it will be seen that I enjoin an opposite plan of operation, viz., the construction of the fly from the tail end. The great advantage of this latter proceeding arises from the appearance of finish and neatness which is possible from its practice, and almost impossible to the same degree by the first method. However, for construction without a vice, the following style is probably preferable when speed is required as well as strength and neatness.

Another Palmer.—At the end of the last chapter I gave instructions for making a palmer. I will now show how a more complicated and somewhat more difficult palmer is made. I furnish this descrip-

tion because I want these pages to be, above all, educational and progressive. Suppose you are going to dress the black or golden palmer. Having completed the first operation of connecting gut and hook, put on your red hackle with only one lap of silk; then, by the side of that, fasten on your gold twist or tinsel with one lap, and attach your herl with two laps; cut away the butt ends of all three, and wind the herl four or five times closely round the shank of the hook in direction of the bend, then take the gold twist and wrap it in the same direction three times round the herl; after that, take your red hackle by the point, and wind it in thick laps over all. Now withdraw, in a backward direction towards the end of the shank, the herl, and twist and make fast to hackle with two laps of silk. Again take the ostrich herl, and wind it thickly three or four times round the hook towards the bend; then rib with windings of the twist to the last lap of the herl. Fasten with two cloven hitches opposite the barb of the hook, and the affair is completed. The foregoing description will be rendered fully intelligible to the reader by Fig. 192.

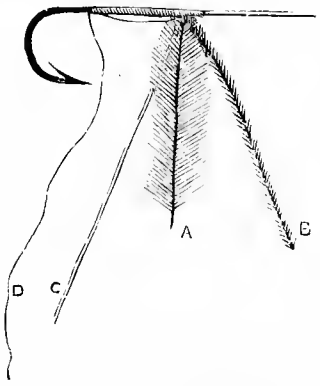


Fig. 192.—Another Palmer.
A, Hackle; B, Ostrich Herl;
C, Tinsel; D, Tying Silk.

How to Make a Fly with Wings, and Dubbing for Body.—The process of making a winged fly is considerably more difficult than the simple making of a

palmer ; and this must be the next step to be taken. Attach gut and hook as before described, having, of course, fixed the hook in the fly-vice, as shown in

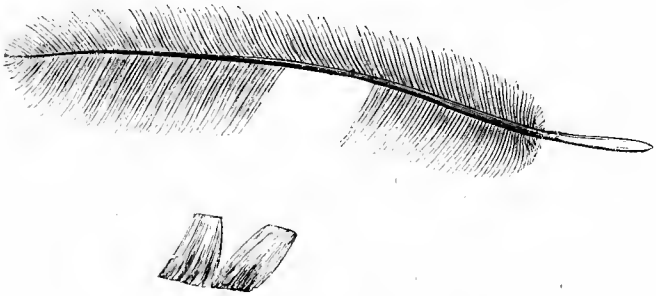


Fig. 193.—Feather for Wings, showing Fibres detached and separated for Wings.

Fig. 185; then strip a sufficient quantity of fibres from the feather of a starling's wing, or from that of the wing of any bird mentioned in our fly-making materials (see Fig. 193), and place it on the back of the shank with the roots towards the bend, and the points of your feather towards the right hand, then lap the silk at a short distance from the end of the shank twice round the feathers and the shank. With your right-hand thumb-nail force upright all that part of the wing which lies to the right of the silk laps, divide equally and exactly into two parts on each side of the shank your feathers, so as to make two wings of exact proportion, the one with the other, in every respect, as shown in Fig. 194. Then bring the silk under that wing which is nearest to you, and over it through the separation of the wings in the direction of your vice ; next, bring the silk round the

Fig. 194.—Wings ready for Attachment.

wing on the left-hand side of the shank, drawing it towards your left through the separated wings, pass the silk once more, as you did in the first instance, through the wings. Now cut off the roots of the wings, and bending the points of the wings by taking them together between your right thumb and forefinger down towards the bend of the hook, and holding them down on the shank firmly in that position, lap your silk three times between the bent-down wings and the point of the shank. This operation forms the head of the fly, and serves to keep the wings from falling back and to retain them in their upright condition. Now take your dubbing, whatever

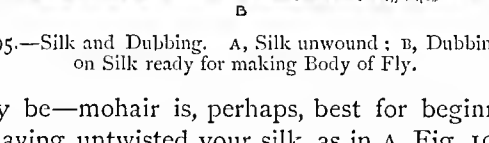


Fig. 195.—Silk and Dubbing. A, Silk unwound; B, Dubbing spun on Silk ready for making Body of Fly.

it may be—mohair is, perhaps, best for beginners—and having untwisted your silk, as in A, Fig. 195, lay it evenly but thinly round it; spin the silk sharply three or four times round between the ball of the thumb and the forefinger, which will cause the dubbing to stick round it evenly and firmly, as in B, Fig. 195; and then take your silk, with the dubbing spun neatly round it, and lap it close under the wings on the side next the bend four or five times, or until you see there is sufficient dubbing lapped round the hook to form a body of proper length and thickness. Then wax your silk, in order to clear off the dubbing that is not wanted, and, lapping your silk twice round the shank, fasten with a cloven hitch. Now examine the

shape of your fly, and if the dubbing seems unevenly distributed, pick it out with your picker, or clip with your scissors when too much exhibits itself. Fig. 196 shows the finished fly.

Fig. 196.—Fly with Wings, and Dubbing for Body.

How to Make a Grouse or a Wren's Hackle. — Lap the hook and gut together in the usual way. Strip off the fine fibres from the quill end of such feather as you are going to use, and, instead of placing that end to be first whipped on to the shank of the hook, as you did in dressing the simple hackle, you must fasten on to the shank the tip end of the feather, having first made a separation in the fibres of your feather for the silk to pass through without obstruction. This separation is made by forcing from opposite points of each side of the stem the fibres backward towards the root of the feather. Whip your silk twice round the point of the feather at the place where the fibres are separated, and then cut off what remains in the direction of the bend at that point. Now take between the forefinger and thumb of the right hand the thick end stem of the feather, and wrap it twice round the shank in the direction of the bend, make two laps over the feather, and cut away what remains of it. Fasten as before. Fig. 197 shows the process.

How to Make a Winged Fly with Hackle for Legs.— Whip on your silk and gut according to the directions given for the making of a plain hackle, and tie on your wings according to the instructions "How to Make a Fly with Wings and Dubbing for Body." Having completed these operations, strip the downy

fibres off the thick end of your hackle feather, and fasten it with two laps of silk. Cut off the thick end of the stem of the feather; with your right hand draw back towards the point all the fibres of the feathers in order to separate them distinctly, so that when the feather is wound round the hook the fibres may sit more regularly. Next take the hackle in your right hand fingers by the point, and lap it round in close laps under the front of the wing, down towards the bend. Having done this, whip your silk twice round

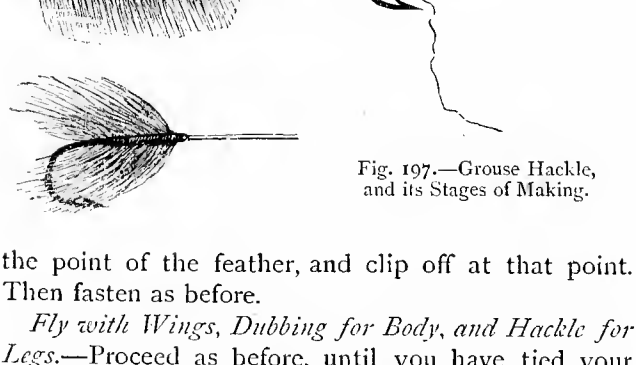


Fig. 197.—Grouse Hackle, and its Stages of Making.

the point of the feather, and clip off at that point. Then fasten as before.

Fly with Wings, Dubbing for Body, and Hackle for Legs.—Proceed as before, until you have tied your wings, then attach your hackle with a single wisp of the silk, twist your dubbing on the silk as before directed; having done so, lap your dubbing close under the wing, and over the stem of the hackle, and hook three times, then clear away the superfluous dubbing, using the wax for that purpose. Now take your hackle by the point, and lap it over the dubbing three times, cut off point of hackle, and fasten.

To Make a Fly with Wings, Dubbing for Body, Hackle for Legs, and Ribbed with Gold or Silver Twist.—This is how the sand-fly was originally made, and to properly manufacture it requires very high skill. The learner will see that there are four different materials employed in its make-up; and if these are not neatly and properly put on, the result is a caricature of the actual insect, and not a likeness. Having put on the wing in the usual way, he must fasten his gold or silver twist with one lap of silk directly under them. He must then fasten by the side of his twist the hackle with one lap of silk also. He must then cut the ends of his twist and hackle away; then the dubbing is placed on the silk and twisted round the hook sufficient to form a body; over the dubbing he must lap the twist two or three times, and then both over dubbing and twist. Close to the wing of the fly let the hackle be wrapped three times; he must fasten the point of the hackle with one whip of the silk, and then clip off what remains of the point of the hackle. He must now whip the silk twice or thrice toward the bend, and over that take two laps with the twist. The silk may now be brought down to the bend, and finished off as before.

These directions, if followed out and practised with patience and an intelligent interest, will thoroughly ground the learner in the general art of fly-tying. Of course, salmon flies are creations of a far different kind; and as they resemble nothing living, it is necessary for the tyro to buy or otherwise procure his pattern before he can imitate. I shall refer to these anon. Meanwhile, the excellent directions given by the late Ogden, of Cheltenham, as to that invention of his, the "floating fly," are worthy our consideration,

inasmuch as that it is not too much to say that this veteran trout fisherman almost revolutionized our ideas in regard to fishing in clear waters by their introduction. To omit the floating fly, and especially the floating May Fly, would therefore be a grave error of judgment in the writer of this little treatise.

Here are Ogden's instructions *in extenso*, which I extract from his capital little book on fly-tying. "To commence, fix your hook firm in the jaws of the vice (see Fig. 185), leaving sufficient of the shank out to the right to form the body of the fly. Put three turns of waxed silk round the shank of the hook, leaving less than the eighth of an inch bare to wing and head upon. Take a length of gut, . . . test it, . . . lay it underneath the hook, and wrap down with the waxed silk close and even; . . . the smoother the foundation, the better the fly will look. After wrapping down, try your gut with a steady pull to see that it will not slip, for that is unpardonable. Avoid making the body too long.

"If the fly you wish to copy has tails (and a good many of the Ephemeridæ have), take three strands of a large cock's hackle, either duns or reds, secure them with two wraps of silk, cut off the waste ends, give the silk a twist, and wrap close back up to the shoulder, still leaving the bare hook to wing and head on. This is a plain silk body, which I prefer. Now for setting on the wings, which is the most difficult part in making a Midge Fly. Commence with a starling wing, which should be smooth and clean; take a right and left wing, get a centre feather from each wing, strip off the fag end, and with the right finger and thumb divide as broad a piece as you wish one side of the wing to be. Draw the tips

carefully down till quite even, without separating the fibres, at the same time holding the quill and roots firm with the left finger and thumb, easing them occasionally to let the wings lie even and smooth, coaxing the fibres gently together. This being done, with the left finger and thumb hold the quill and the roots of the wing firm, while with the right finger and thumb press very tight, keeping the wing flat, and with a sharp twitch separate the wing from the quill, taking care not to slack your hold or disarrange the fibres. Lay it carefully down on the work-table, the outside of the feather uppermost. In precisely the same manner take a wing from the other feather exactly the same size as the one first taken off; when done, place it carefully on the inside of the forefinger of the left hand, the inside of feather uppermost, and the roots of wing pointing to tip of finger. Pick up the other half of wing (which I do by moistening the tip of forefinger of right hand), and put it to the other half of wing. Lay the tips very evenly together, and (inside of feathers facing) press them together, keeping them flat, and without altering their position place them on the top of the bare hook. For length, they should reach to the bend of the hook, but no longer. Take the tying silk in the right hand, open the left finger and thumb slightly at the tips to allow the silk to pass up and down, then close and press tight, at the same time drawing the silk very carefully down, or it will break on to the roots of the wing. Take two more turns of the silk in the same manner, keeping all the time a gentle strain on the silk, or the wings will twist round. Pass the silk securely round the screw of the vice, and release the left finger and thumb, to see if the wings are set

properly. If so, draw your gut carefully on one side, avoiding the shank end of the hook, as it will sometimes fray it. Turn off the roots of wings neatly with a sharp pair of scissors. Then take two turns of silk on the head, holding the wings as before, not allowing the silk to slack or the wings to draw out. Pass the silk behind the wings, ready to tie the hackle in, which should be proportioned to size of hook, and tapering. Strip the fluff off the hackle, and take it in the right hand, root downwards, the outside part of hackle to the right; tie it in sideways, close behind the wings, with two turns of silk, taking care not to disarrange the wings. Cut off the quill end of hackle, not too close, or it will fall out. With the tweezers (Fig. 187) lay hold of point of hackle, keep it well on the edge, and put two or three turns behind the wings, bringing the hackle well forward underneath. Secure it with one wrap and two hitches before taking the tweezers off, cut off silk and point of hackle, press it well back from the head, open and adjust the wings with the scissors' point, and cut away any stray fibres; the fly is now finished."

Fig. 198.—Blue Dun Fly.

Blue Dun Fly.—The illustration of the Blue Dun Fly, in Fig. 198, will illustrate the foregoing sufficiently to bring home my meaning. The following is the approved dressing, however: *Body*, fine fur of hare's-ear or face, twisted on yellow silk; *tail*, two fibres of dun-coloured hackle; *legs*, two or three turns of a red hackle, finishing at head; *wings*, of starling wing-feather.

I have thus given rather lengthily, and perhaps to the uninterested reader, most tediously, the various items of fly manufacture. Not one has been unnecessary; and lest I carry out this volume to an undue length, there is much I must perforce omit, which, for the most part, no doubt will eventually be discovered by the persevering tyro. One very important fly must not escape description, however, and that is the May Fly, of which a very fair representation is given in Fig. 199. This insect, on streams such as the Hampshire Itchen and Test, fairly turns the heads of enthusiastic anglers on its rising in early June—for the term May Fly is a misnomer.

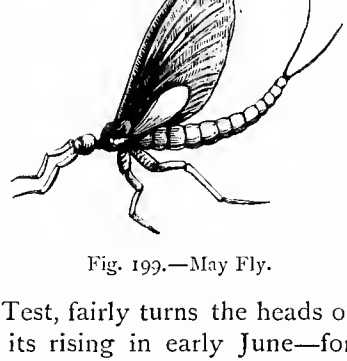


Fig. 199.—May Fly.

May Fly.—Here is a capital dressing of the fly—for floating—indeed, I can safely say it is the best dressing ever arrived at. First, get a suitable hook with the smallest amount of iron in it possible, and tie on your gut; let this be fine, but not too fine, or there is a danger of popping the fly off when fishing. Tie on the tail three whisks of brown hen, or pheasant, then take a slip of nice wheat straw, cut it to fit round the shank of the hook so that it tapers. To ensure this, soak the straw in hot water, and bring it up to the shoulder of the hook, lash it round with some burnt sienna silk, taking, say, some half-a-dozen spiral turns, and finish off at the tail with three turns. At the shoulder you should have three turns of a light

sandy hackle, and over this, two turns of a bright hackle wing. Teal will do capitally, or drake, or Egyptian goose, or Canadian wood-duck; and they should be set upright with the points outward. For the green drake, these should be dyed, as advised. Two turns of peacock herl to form the head completes the fly, and it will kill trout when all other imitations fail. This I have repeatedly proved.

Any one who has followed the foregoing with intelligence, will be ready now to take notice of the formulæ I shall give for the making of the chief trout flies of the year. Again let me impress on the reader that it is highly desirable to procure either Ronalds' book, wherein the colours are capitally shown, or the real insect,—best of all plans,—or flies tied by acknowledged chiefs of the fly-tying art, as patterns. The dressings I am about to give are those in most approved use, and are necessarily, therefore, not original, though in all cases I have tried each pattern with success; those which did not seem to possess the elements of efficiency, though advocated by, in some cases, the highest authority, I have not hesitated to discard.

February is sufficiently early for trout fishing, and I therefore begin with the favourite lures for that month.

The February Red, or Old Joan.—Body.—This is formed of a dubbing composed of the dark red part of squirrel's fur, mixed with claret-coloured mohair, showing the most claret at the tail of the fly, and spun on brown silk; wings from the softest quill feather of the peahen's wing; legs of a claret-coloured *stained* hackle (see Dyeing Feathers). Hook 2, Kendal short (Ronalds').

Another dressing. Body.—Two turns of dirty claret, red mohair at tail, and a strand of hare's ear, and claret thrown in for rest of body. Hackle, dark grizzled dun cock's. Wing, a slip from back of the peahen. Hook, 9 or 10, or larger for rough weather.—*Francis.*

The Olive Fly.—Body of dark olive mohair; wing, a starling's wing feather to stand upright; tail, two whisks of a mottled mallard's feather, to be tipped with a lap of silver tinsel. This is poor Fitzgibbon's formula, and a good one it is.

For such rivers as the Barle, Exe, Taw, Lynn, Bray, Mole, Dart, Teign, and other Exmoor and Dartmoor streams, I know of no flies for this month to compare with those recommended by Mr. Cutliffe, in his "Art of Fishing Rapid Trout Streams." He gives eight patterns, distinguished by no particular names. No. 1. Body.—Equal parts of fox's and squirrel's fur from the back, hackle or legs of rusty brownish hue. No. 2. Body.—Equal parts of house rat's and light brown sable's fur, or fur taken from the tail of the brown sable alone; legs, speckled brown silvery. No. 3. Body.—Dark peacock's herl, ribbed with gold twist; legs, black red. No. 4. Body.—Equal parts of hare's flax dyed yellow, water rat's fur undyed, and rabbit's flax undyed, ribbed with straw-coloured silk; legs, smoky blue. N.B.—This is a greenish-coloured body. This fly may be made up lighter or darker, both in body and hackle. No. 5. Body.—The same as No. 2, ribbed with gold twist; legs as brown or drab coloured as can be got. No. 6. Body.—Equal parts of brown bullock's hair, and of the ends of squirrel's fur, ribbed with gold twist; wings, pheasant, or hackle, bluish red. No. 7. Body.—The black flax from a rabbit's tail, some flax from the

eyelid, ditto from the back, and from a skin dyed in the yellow dye (see below); wings, from thrush; hackle, blue to match the body. No. 8. Body.—Finest cow hair, such as you can pick out of a wren's nest, ribbed with straw-coloured silk; hackle, dark rusty blue.

It will be seen that these flies are, with but one or two exceptions, unwinged; wings are of but little utility in very rapid water. The yellow dye referred to is a strong infusion of turmeric, in which a lump of alum has been dissolved, and in which the furs are boiled for a few minutes. Of course, the bodies are composed of dubbing, spun on silk, as before directed. The flax of any animal referred to means the tips of the fur, not the roots included, the latter always being much lighter.

Flies for March.—The Cow-dung.—Body of yellow worsted or lamb's wool, mixed with a dingy brown fur, spun on light brown silk, and left somewhat rough. Its wings are from the landrail, and its legs of sandy-coloured hackle. *The Peacock* is a small beetle, very plentiful, and killing on warm summer days. Body, peacock's tail of a ruddy brown, dressed with mulberry silk; wings, of the dark feather of a starling's wing; legs, of a hackle stained dark purple. *The March Brown* is found both of the male and female "persuasion." Body of male is made of the fur of hare, face ribbed over with olive silk, and tied with brown; tail, two strands of a partridge feather; wings, of centre of a hen pheasant's quill feather when found of the exact shade; legs, a partridge feather of a sort of mottled brown. Best dresses it as follows: wings, of the pheasant's wing; body, of the bright part of hare's fur, mixed with a little of the red of the

squirrel's fur, ribbed with yellow silk, and a partridge hackle wrapped over twice or thrice under the buff of the wing.

Flies for April.—The Sand Fly. Body of the sandy fur of a hare's neck, spun on orange-tinted silk. A landrail's wing will supply the wings, and a ginger feather from a Dorking or other suitably-coloured hen will furnish legs. *The Stone Fly.*—Body, fur from hare's ear mixed with yellow worsted, and spun on yellow silk; tail, two strands of partridge, brown; wings, pheasant's quill feather from wings; legs, greenish brown hackle. *Grannam.*—Body, fur of hare's face spun on light brown silk, with a little green silk worked in the end; wings from partridge wing; legs of sandy-coloured hackle.

Flies for May.—Hawthorn Fly.—Body, black ostrich feather; wings, starling's feather; legs, pewit's topknot or blackcock hackle. *Black Gnat.*—Body, dark ostrich herl; wings, feather from starling's wing. Sometimes black horsehair or silk is substituted for the herl in making the body. *Oak Fly, or Downward Fly*, is usually found on the oak, with its head looking downwards—body, orange floss silk wound on grey silk; wings, a feather from a woodcock's head; legs, of a furnace hackle, or a black and red cock's hackle.

Flies for June.—The Yellow Sally,—Body of buff fur of a fine texture, spun on a bright green silk, or ribbed, if possible; wings, of a white feather of any fine kind stained a pale yellow; legs, a yellowish ginger hackle. The *Alder*, or *Oil Fly.*—Body of mulberry floss silk; wings, of a brown hen or peahen's wing; legs, of a dark amber-stained hackle, or, in an emergency, a blackcock's hackle will answer. *Marlow*

Buzz, or *Cock-y-bouddhu*.—Body, black ostrich herl, twisted with peacock herl, and made with red silk thread; the wings and legs are made buzz with a dark furnace hackle.

Flies for July.—The Red Ant.—Body, the body of peacock herl left *au naturel* as regards the lower or tail half, and tied in at the waist with copper-coloured silk; legs, a red-cock's hackle, and wings of the light part of a starling's feather. *Little Orange Fly* (Ogden's pattern).—Body, made with deep orange-coloured floss silk; the legs put on flat from the water-rail or hen blackbird's wing; legs, a dark furnace hackle. *Cinnamon Fly*.—Body, fawn-coloured floss silk; wings, feather of a yellow-brown hen's wing; legs, ginger hackle.

Flies for August.—August Dun.—Body, brown floss silk, ribbed with yellow silk thread; tail, two rabbit's whiskers; wings, feathers of a brown hen's wing; legs, plain red hackle stained brown (Ronalds'). *Whirling Fly*.—Body, squirrel's red-brown fur mixed with yellow mohair, and tied with yellow silk well waxed; tail, two strands ginger hackle; wings, darkish starling; legs, ginger hackle (Ronalds'). *Little Pale Dun*.—Body, very pale blue fur, mixed with a very yellow mohair; wings, feather from sea swallow; legs, palest blue hackle to be had. To make it buzz (or hackle fashion), a sea swallow's feather only may be wound on the same body. *The Willow*, or *Withy Fly*.—Body, mole's fur, spun on yellow silk: wings and legs, a dark hen's hackle, with the edges strongly tinged with a copper colour, sometimes called a golden dun feather. Made as above, with the addition of wings from the dark part of a starling's feather.

The above are representative flies, which should find a place in every angler's book, and necessarily therefore, the tackle-maker should be prepared to supply the demand. There yet remains a class of flies, however, to which attention must be drawn, and these are, in angler's parlance, termed the "Quill Gnats." They are imitations of certain of the smaller Ephemeridæ of our chalk and other streams, whose bodies are, so to say, ringed with bands of varying shades from the rest of the insect. The bodies are, therefore, variously made from quill, gut, hair, and sometimes of india-rubber; and it is according to the accuracy or otherwise of the imitation that sport ensues. Mr. Francis Francis says of these: "Body, a strip of quill from a starling's feather neatly rolled on; legs, dark blue-dun cock's hackle—some prefer red hackle; wings, bright starling's wing Pull the tail off, and the fly will pass muster for many other small flies which it somewhat resembles throughout the season." This somewhat differs from my own dressings. I found it extremely hard to get the right sort of quill when I first fashioned this kind of fly. Get some good peacock "eye" feathers, choose the big ones, then turn the feathers so that, the metallic lustrous fibres are downwards. You are looking at the back of the feather, and if you pick out those the quill of which looks lightest, you will find that there is a dark and light side to this quill, which is precisely the appearance most desirable on the body of the fly. Strip this off, and neatly wind it on your hook shank, giving a ginger hackle for legs, and a light starling feather wing put on upright, and you have the famous "red quill" of the Upper Itchen. Gut and horsehair dyed will serve for these

flies admirably, under some circumstances, and bottle india-rubber, or even the rubber from an old boot, has before now enabled me to get a dish of fish otherwise inaccessible.

Although the preceding directions are sufficient for all practical purposes, it is desirable, for the sake of those who wish to be possessed of the fullest possible information on the subject, to supplement them by further information relative to the now prevailing method of dressing most of the finer trout flies in ordinary use.

A great many of these are made with gut bodies; and here I may briefly explain that it is not necessary to employ the finest strand of whole round gut. On the contrary, I find that the shaggy ends which are hidden by the coarse red thread usually wrapped round each end of the hank are remarkably suitable when the colour of the body of the fly is intended to be given by means of silk, as in the following example. This suitability is the result of the said waste ends being flat, and not round. They should be polished with a piece of dry chamois leather and straightened by its means, and are then ready for use. If, however, the maker likes, he can dye his gut; but in that case the round gut, of different thicknesses according to the size of the body of the fly, must be used; and though this perhaps makes a neater body, its efficacy in catching fish is not more pronounced; and in the first plan one has the satisfaction of knowing that there is no waste in the hank of gut, if it is utilized as I have indicated.

We will assume that the amateur is going to build a fly, using one of these waste fibres of gut. First he attaches the gut to the hook in the usual way, leaving

about $\frac{1}{8}$ of an inch at the end of the shank unbound. Having selected a clean, clear, flat piece of gut, he attaches it with one turn and a half-hitch (see Fig. 200). He decides what coloured body he intends having, and then in a similar way attaches a length of floss silk of that selected colour; two whisks from a long fibre hackle, or two rabbit's whiskers, or two tapering hairs of any kind, providing they are of a

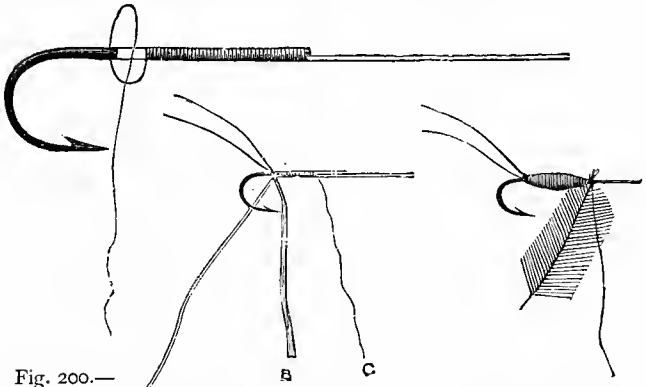


Fig. 200.—Showing Fastening.

Fig. 201.—A, Gut; B, Floss Silk; C, Tying Silk.

Fig. 202.—Hackles *in Situ*.

harmonizing colour, are next attached, and the tying silk is then placed in readiness for the next position between the gut and hook-shank. Fig 201 exhibits these operations; and I advise the reader to correctly understand it before proceeding further.

Now take the floss silk and wind it evenly to where the tying silk is fixed. Holding the floss between the left finger and thumb, take one turn round it with the silk thread and tie, then snip off the superfluous end and neatly whip round any fibres which show themselves, as they often will do, no matter how closely

you snip the silk; secure with a half-hitch; now take gut and wind it tightly and evenly over the silk; secure it with the tying silk very carefully, for the spring of the gut renders it more liable to come undone or to loosen the silk if the latter is not very tightly tied. Your next operation now is to attach the hackle. Select one with fibres of a length which seems appropriate to the size of the fly and of the hook—not too long nor too short. Judgment is required here, because, if the hackle belongs to either extreme, a neat symmetrical production cannot be expected. Well, supposing you have one somewhat like that in Fig. 202, you take it and open the fibres by drawing it between finger and thumb until the appearance is presented as shown. Now place the point on the shank of the hook and with one turn and a half-hitch secure it. Next cut off the point almost close, and then take another turn or two on the tiny projecting end you have left in the direction of the end of the shank. Place the tying silk in the space between gut and hook as before, and proceed to wind the hackle.

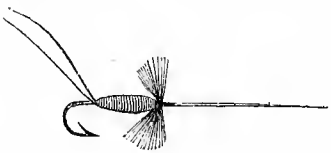


Fig. 203.—Hackle Wound and Secured.

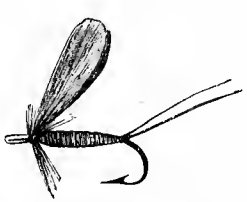


Fig. 204.—Winged, Hackled, and Gut-bodied Fly Finished.

Now, winding a small hackle is not the easy thing one might suppose, and I much prefer using the little brass pincers shown at Fig. 187. With these you take hold of the quill end of the hackle, and, carefully

stroking the fibres of the hackle towards the bend of the hook after each turn, you wind on say three turns. Now release the tying silk, and bring it over the hackle and secure it in the usual way. It should present somewhat the appearance of Fig 203. The next operation is the winging of the fly; and for this process I refer my readers back to the lucid instructions quoted from Mr. Ogden's book. I cannot improve on them. Fig. 204 gives an idea of how the winged gut-bodied fly should look when finished.

In Fig. 205 we have a fly made with the addition of a small hook attached behind it; and I have found this arrangement a most effectual one when the fish were rising "short" as it is termed, that is, when they rise at the fly but do not take it. The gut is placed on the shank at the same time as the hook is whipped to the main line.

Fig. 205.—Fly for "Short-rising" Fish.

The most important improvement of late years in small trout flies was unquestionably Mr. Macnee's ingenious pike-scale winged arrangement. I admired this very much, and used the flies with great success, but found that the wings were far from durable; and moreover the invariable semi-white transparency did away with the possibility of complete imitation of the natural insect. After thinking over the matter, I remembered that when dissecting the scales of the Cyprinoids, or Carps, I found a tough and extremely tenacious membrane on the under side; and I resolved to try this in lieu of the pike-scale for wings. The result has surpassed my utmost expectation; and

not only does the wing prove an extremely supple and well-nigh indestructible one, but it is possible to dye it any colour you desire, providing cold dye is used and the membrane dry when it is immersed in the solution.

The following is my method *in extenso*, which I freely give for the benefit of all anglers interested in fly-fishing. Let Fig. 206 represent a carp scale. Turning the underside uppermost, with a sharp knife I cut through the membrane round the scale, following the line indicated at A. This is done by simply bearing on the pen-knife vertically; the point is then inserted and the membrane raised, and then the point is gently pushed under between the calcareous outer shell of the scale and the skin referred to. Presently the square of membrane is entirely separated. I ought to say that this operation can only be performed when the slime is on the scale and it is quite fresh from the fish.

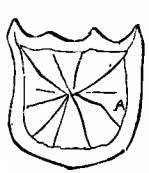


Fig. 206.—Carp Scale.

We have now a piece of membrane which, when held up to the light, is of a silvery transparency and minutely striated with striæ greatly resembling the net-work of the nerve-winged insects. Sometimes it cannot be separated without some of the fibres connecting it with the horny part of the scale being torn; but with a little trimming with a sharp knife, and carefully rubbing with the clean forefinger dipped in soft water, all this can be rendered even and the surface smooth and polished. Do not forget that the underside is the "wrong" side, and therefore never put it outside when the wings are fixed. The next thing to do is to fold it in two and place it

between two sheets of letter or other hard paper and this in turn under a weight for a few hours. By this time it can be taken out and with a sharp pair of

Fig. 208.—Fish-scale Wing Open.

Fig. 207.—Fish-scale Wing.

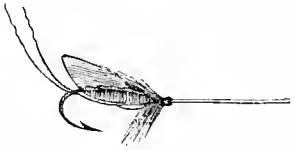


Fig. 209.—Fish-scale Down-winged Fly.

scissors it should be cut into shape. Fig. 207 shows a very good shape, and Fig. 208 indicates the same spread open, to show that the cutting should not interfere with the buff, or lower end which is attached to the hook.

Of course the body and hackle of the fly are made as previously explained, but these wings are not put on quite in a similar manner. I always turn them; that is, they are first laid inside out, pointing to the right-hand side of the hook and tied, and then turned over as shown in Fig. 209, and tied again. This gives them extra strength of attachment. Fig. 209 shows a down-winged fly made with this beautiful material; and Fig. 210 is a rough illustration of some of the up-winged species that I make with this membrane.

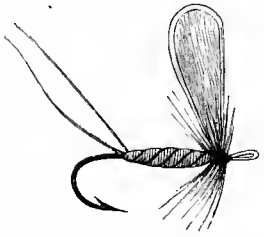


Fig. 210.—Fish-scale Up-winged Fly.

Now, as to dyeing. As I said before, the dye must never be warmer than fresh milk; and if vegetable dyes will produce the tint you want, by all means

discard the acrid aniline productions. Nearly all large-scaled fish, even those from salt water, are possessed of this serviceable membrane; and I have made flies here in America from the membrane off the dainty North River Shad and off the mighty scale —seldom smaller than half a crown—of the Floridan Tarpon, or Silver King. The skin of the scale from one of these splendid fishes is quite as thick as a shilling in its entirety; but it consists of laminæ as thin as tissue paper. Even the bodies of the flies and legs can be fabricated from fish-scale membrane by the ingenious artificer; and thus the lure formed for the enticement of the fish be constructed entirely from the products of a fish.

The advantages I claim for this discovery over the other fish-scale fabrications are these in brief: First, the material is extremely tough and durable—stiff out of water but of exceeding softness immediately it falls on it—hence it must be superior to the comparatively stiff pike scale. Secondly, it is easily dyed. Third, it is extremely easy of manipulation when making the fly; and if placed in position as I have advised, it cannot tear off till the fly is absolutely a wreck everywhere else. If it is employed to make bodies as well, then is a carefully constructed fly practically indestructible.

The making of a detached bodied fly is a much more difficult matter than making one of the ordinary pattern. The objection to these detached bodies has been, that if by chance the trout knocked its nose against the body, instead of taking the whole fly into its mouth, it would inevitably push the bait, hook and all, from itself. And this is a true bill, if we can imagine the trout doing anything so egregiously stupid. It is true that, in the

representations which follow, the body of the fly is unduly long ; that is, it represents a long-bodied May Fly ; but in the majority of cases this objection is not of much weight in practice. Anyhow, the detached bodies imitate the natural fly very much more closely than any other artificials ; and the following cuts and explanation will enable the patient tyro to construct for himself.

Fig. 211 at A shows four strands of ordinary round gut placed in position with a view to the ultimate taper form of the fly's body. Two at their extremities are singed in the flame of a candle, so as to closely imitate the discoloration invariably found at the extremity of the natural May Fly. C shows two rabbit's whiskers, which form the tail. B represents the strand of end gut, which will be utilized as in other gut-bodied flies.

Fig. 212 almost explains the next stage without comment from me. At A the strands of gut are shown together, and the rabbit's whiskers are placed in their correct position. The outside gut is also placed in position for winding. Commonly the body-foundation is taken tightly between the finger and thumb of the left hand, and the gut is wound from you *under* and over, or the reverse way ; so that when it has arrived at the position shown at B you can shift it round, and, taking the bend of the hook and the body together between the left thumb and finger, the gut can be passed round and round the hook, binding the body firmly. When the upper part of the shank is reached, the gut is secured by means of the tying silk, well waxed, as shown in Fig. 213 at A. The next process is the putting on of the hackle, and I think I need not again describe this operation. B,

in Fig. 213, shows a method of tying on single feather wings. These wings are very strong and durable, and should be secured first in the position shown by means of two turns and a half-hitch; after that they should be turned upward, as in Fig. 214, which also exhibits the detached bodied May Fly finished, though I am obliged to own that my drawing is far from doing justice to the specimen from which I endeavoured to take a likeness. However, the idea will probably be grasped by the reader; and to be of practical help is the chief object of this little treatise.

Before leaving the subject of small trout flies suitable for Great Britain, I would call attention to the subject of their attachments to the "line," "leader," or "cast." Recently the eyed hook has come to the fore, and deservedly so; but there are yet vast numbers of sportsmen who never could take to this innovation —especially is this so in America, where the eyed hook, to the time of writing, is practically unknown. Fig. 215 shows some of the chief patterns in the eye-hook shanks; and their various excellences and defects have been the ostensible theme of many a spiteful letter in the piscatorial press. I give them without comment further than this—the turned-*up* eye has been my favourite, and with it I believe I have better sport than with any other kind. The simpler the knot which connects them with the gut the better; and let it be borne in mind that the gut must always be soaked well before tying it.

I need scarcely explain that these eyed hooks were primarily invented to obviate the wear and tear of the gut just at the junction with the fly, and the frequent consequent loss of many a good fish; now I find that this wear and tear is caused chiefly by the

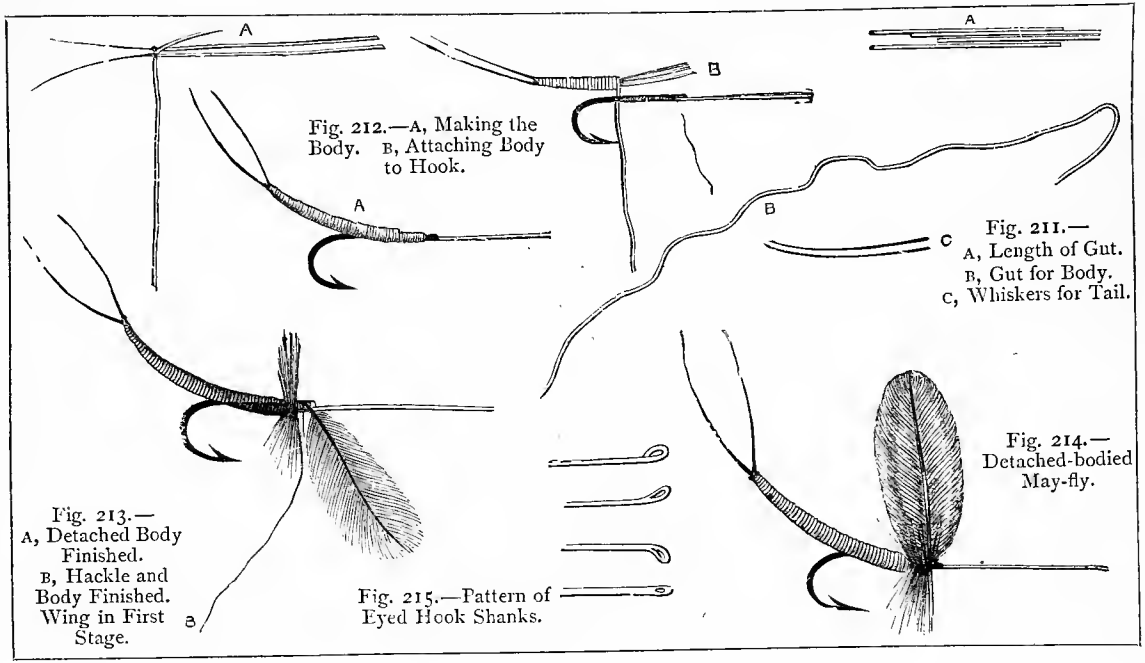


Fig. 212.—A, Making the Body. B, Attaching Body to Hook.

Fig. 211.—
A, Length of Gut.
B, Gut for Body.
C, Whiskers for Tail.

Fig. 213.—
A, Detached Body Finished.
B, Hackle and Body Finished. Wing in First Stage.

Fig. 215.—Pattern of Eyed Hook Shanks.

Fig. 214.—
Detached-bodied May-fly.

end of the hook shank cutting into and tearing the fibres of the gut. Various expedients besides the metallic eye, such as that shown in Fig. 216, made with gut, gimp, or silk line, have been tried; but none are so good as Captain Tod's device, shown in Fig. 217. The engraving explains itself.

A modification, which the inventor claims as an improvement, is shown in Fig. 218. A, A, A are the three ends which are tied to the shank. B is the simple knot which passes round and through the loop. D shows the arrangement drawn tight, and Fig. 219 exhibits it tied to a hook.

The advantage of these arrangements is, that three strands, instead of one working on a hinge of its own material, prevent the gut from wearing as in the ordinary style of thing. I look on these simple expedients as highly valuable, and creditable to the practical fisherman who brought them to the notice of the angling community.

There is yet one other simple device in reference to the hackling of the smaller flies which I would here interpolate, as being likely to be exceedingly useful, and that not only to the manufacturer of the smaller flies but to those who have to prepare the lures of the king of fish—the salmon. Fig. 220 explains what I mean. It represents half a hackle, *i.e.* one with one side stripped. I have purposely drawn it about four times the original size. Now it is extremely difficult to make the fibres of a hackle "set" properly, so that they present a neat appearance in the case of the very tiny midges; and I, therefore, if I am tying flies for appearance as well as usefulness, invariably prepare a hackle like that represented. In the case of larger flies, two of them may be employed

instead of one, and the two wound side by side. Too much hackle is an anomaly, for no flies have two or three hundred legs, and a hackle stripped as I have indicated gives quite a sufficient number of fibres to fitly represent the original insect.

The method before described for the putting on of

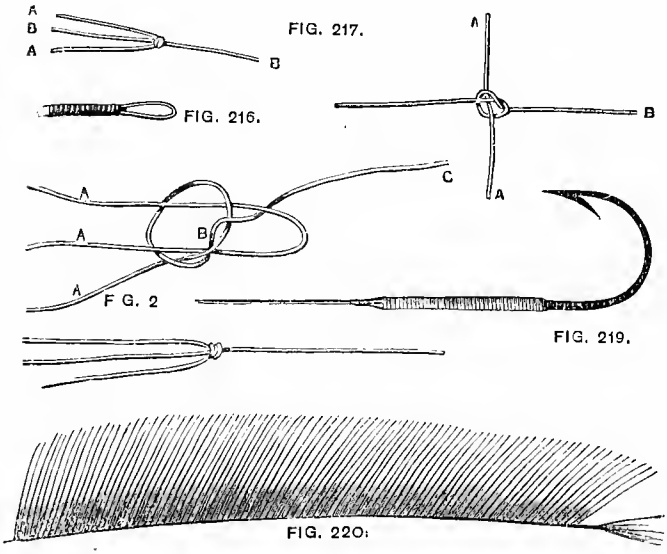


Fig. 216.—Gut Loop on Hook Shank. Fig. 217.—A, A, B, Knot Loose; A, A, B, B, Knot Drawn Tight. Fig. 218.—Joint for Head of Hook. Fig. 219.—Joint in Position. Fig. 220.—Hackle Stripped after New Style.

the wing of a fly is quite sufficient for all the ordinary small artificials; because if one gets three or four fish with a tiny midge costing only a few pence, and the last one "rags" it out of form and knowledge, there are not many sportsmen who would regret the expense of a new fly. But when we are dealing with the lake

trout and other larger trout flies, the loss of a wing whilst casting, or on the tooth of a fish, is, to say the least of it, provoking.

To avoid this, it is customary to "turn the head," or, in other words, to double the wings back, so that they are additionally secure. Fig. 221 gives an idea of the first stage of the arrangement of fibres for the wing of one of the larger flies. The knot of thread at the butt is pulled very tight and cut off close; and thus the wing is formed and remains in true shape whilst the companion wing is also being made. After this, it is placed and bound on the shank of the hook *inside out*, as shown in Fig. 222. The next operation then is, to pass each wing round into position, following the track of the arrow in the engraving. Having done this, the tying silk is easily brought round lightly over the butts, and the wings can be set at whatever angle you prefer. All wings made of strips of a larger feather should be handled carefully, so as not to "break" them, or, in other words, separate the fibres which are felted together. In this connection it may be well to remark that the feathers of water-birds, such as swan, duck, heron, and goose, are es-

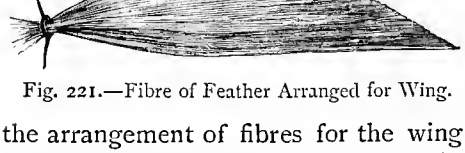


Fig. 221.—Fibre of Feather Arranged for Wing.

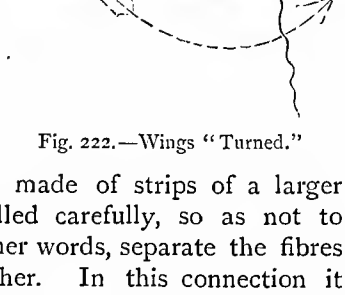


Fig. 222.—Wings "Turned."

pecially fitted for the wings of the larger flies, because of their tenacious "felting" power—one fibre with the other linking with very curious tenacity—and their power of repelling moisture. They are however very hard to dye unless previously boiled in strong soda solution, the natural oil of these birds being exceedingly hard to eradicate from their plumage.

Now that the Black Bass from America seems to be an accomplished fact in England, I have thought that mention in this work of the style of fly employed by the most successful fishermen in the Western States might not be out of place. At any rate a slight notice will be read with interest, if no practical profit. Before, however, coming to the make-up of the ordinary trolling bass-fly, I beg leave to introduce the imitation of a beetle which lies before me, and to remark that if our English tackle-makers would seek to as closely imitate some of our own coleoptera, their labour would not be in vain. Fig. 223 gives a fair outline of the "bug" to which I am now specially referring. Its wings are of a black turkey's feather, body of gut over black floss silk, legs of quill, head of peacock herl, eyes, two small black beads; and a more natural imitation of some of the necrophore beetles, of which the Bass and Perch are often ravenously fond, could hardly be imagined. Fig. 224 gives the first stages of its manufacture. C shows the hook whipped on to a loop of gut, and the gut and black floss silk placed *in situ* ready for winding, and

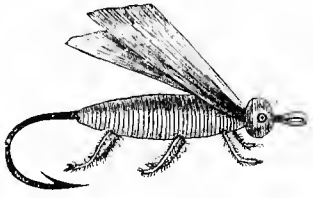


Fig. 223.—Beetle Grub.

the tying silk brought back to where it will next be needed. A indicates the kind of feather from which the legs, B, are best derived. The fibres of such a feather are cut off; and the central stem, with the serrated ends of the fibres remaining, to simulate the hairs on the legs of the insect, is cut into suitable lengths and bent into the shape shown at B. Having prepared six of these, the next step is winding on the black floss silk; this is done evenly, and the first pair of legs are inserted at about the third turn; two or more other turns are then taken, and a second pair inserted, and so on to the final pair, which, it will be observed, are turned in an opposite direction. This done, the floss silk is fastened off, and a length of good firm peacock herl next tied on by two turns and a half-hitch (see Fig. 225). The next thing to do is to take the gut at A and wind it evenly round the body, arranging the legs carefully in their proper places whilst so doing. This done, the gut is fastened off in the ordinary way. The wings are now prepared as shown at D, and inserted at the shoulder with care, being whipped tightly somewhat low on the body; fasten off as before. Now take the herl at B, and wind one turn under the wings, and the next two over in front, fasten off with the silk as before; then thread two beads on the silk, and, bringing them in position, take one turn between the last two coils of the herl, bringing the thread up in front on the shank of the hook; take two turns there and tie with a double hitch. Touch this with varnish, and Fig. 223 is made; clip the wings as shown, and the artificial beetle is complete.

This style of lure requires very considerable persistence and deftness, but is a most satisfactory bait

Fig. 226.—American Bug Bait.

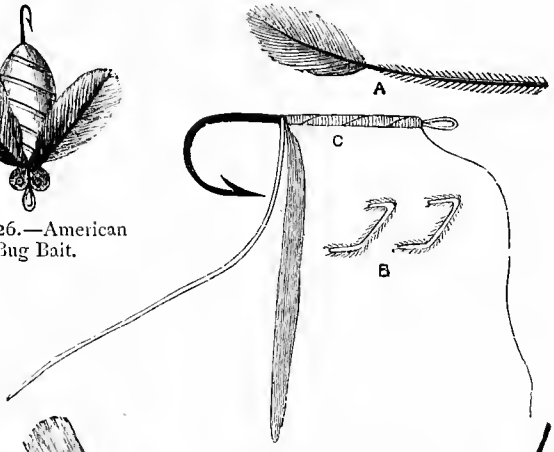
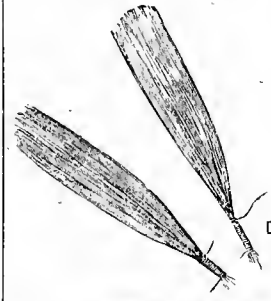
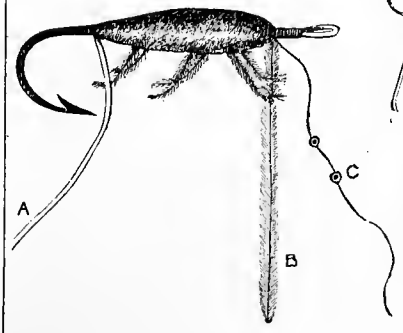


Fig. 224.—Make-up of Beetle. 1st stage.

Fig. 225.—Make-up of Beetle. 2nd stage. A, Gut; B, Herl; C, Beads for Eyes; D, Wings.





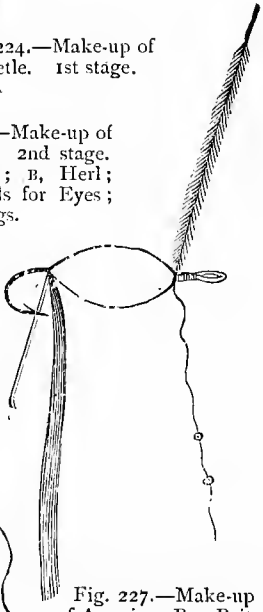


Fig. 227.—Make-up of American Bug Bait.

when finished. Of course other insects can be made on the same principle. I simply give this one in detail, to show the underlying method governing all such creations. The variations of the art of fly-making are infinite; and the greater the fly-tyer's practice, the more he knows the truth of this assertion.

Another kind of "bug" much favoured by some fishermen in America, is that shown at Fig. 226. It consists of a bulky body covered with cardinal silk and ribbed with silver tinsel. The head is of ostrich or peacock herl, eyes of two gold or silver beads, wings of a red ibis small feather, or of green parrot. Fig. 227 explains itself, with the exception of how the bulky foundation of the body is fabricated. This is simply composed of cotton-wool or wadding,—white,—and is rolled round the hook between the finger and thumb into the shape shown. There is no difficulty about this, and after a little practice the tyro will be able to do it so that each end of the body tapers as shown; and until the cotton felts together into a hard mass, I find it is convenient to use a little boiled starch, made as laundresses make it, to the consistency of a thick jelly. The fingers are moistened with this; and the result is that the cotton becomes harder and more compact, so that the silk can be wound very tightly over it. Of course, the starch must be allowed to dry before the silk is wound, but this does not take long. The head and eyes are put on as with the beetle bait, and the wings are carefully secured so as to be at the side and flat over the back of the bug. This is of course a fancy bait, but I am certain that one little ladybird (Marlow Buzz, or Cocky-bouddhu) which is so deadly, might be fitly imitated in this way, and I mean to try it at an early date.

In Fig. 228 we have a representation of an eccentric trolling "grub," used only behind a spoon, or with a swivel like a spinning bait. It is thus made: Foundation of body, cotton wadding, red silk over this, ribbed gold tinsel, ostrich herl running in four strips from head to tail laterally four strips—peacock herl head; legs curled gut, as shown. The gut is easily curled by drawing it between some smooth hard implement and

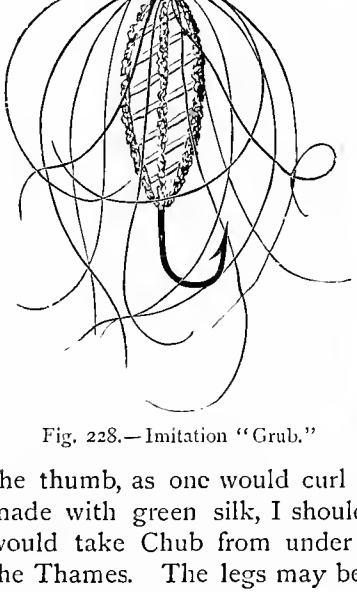


Fig. 228.—Imitation "Grub."

Fig. 229.—Spoon-fly.

the thumb, as one would curl an ostrich feather. If made with green silk, I should think this imitation would take Chub from under the osier boughs on the Thames. The legs may be of any bright colour, preferably scarlet.

Another remarkably good bait for both Perch and Bass, I would recommend to our English Perch fishermen. It can be thrown as a fly, or simply spun in the Thames style for Trout. Fig. 229 shows it. It consists

of a fly dressed with red or other bright-coloured hackles and bodied with silver tinsel; red ibis and white swan form the tail; a fiery red hackle is good at the throat; and gut stained any of the bright colours forms the feelers. Over this, and prevented from slipping down by a glass bead, is a small silver spoon. When this bait is drawn through the water it is a very gorgeous creature, and I prophesy that it would please the eyes of nearly all the fish of prey, not omitting Salmo Salar Esq. himself. It can be, and is probably best, dressed on gimp, as the metal of the spoon and the gut soon disagree, to the deterioration and destruction of the latter. Of course a swivel must always find a place on the trace, be it of gut or gimp: the former is preferable.

The large Bass fly in great demand by the professional large-mouth and small-mouth Bass fishermen of the great lakes of America, next, and finally in this chapter, requires attention. After all that has been said about fly-making, I do not think I need be very minute in explanation of this species of lure; but as it presents some points of difference from any of the preceding productions, I will briefly describe its characters. Following the custom I have thought it best to observe in this work, let us build up a Bass fly together. As every artificial fly or bait has a distinctive name, I will call the specimen we are about to be engaged upon—the "Beuly."

Materials.—Cotton wool, white floss silk, black cord silk, red ibis feather, turkey tail feather (brown), hook 210 sprout. Fig. 230 exhibits the make-up. A shows the cotton-wool, which is attached for winding; B, the floss silk; C, the tail of red ibis; D, the silk cord. Fig. 231 shows these materials worked into shape.

Next we arrive at the winging. Fig. 232 shows how I often make the wing butts serve for legs, as being more durable than a hackle. The wing feather is cut long enough to permit of the ends extending beyond

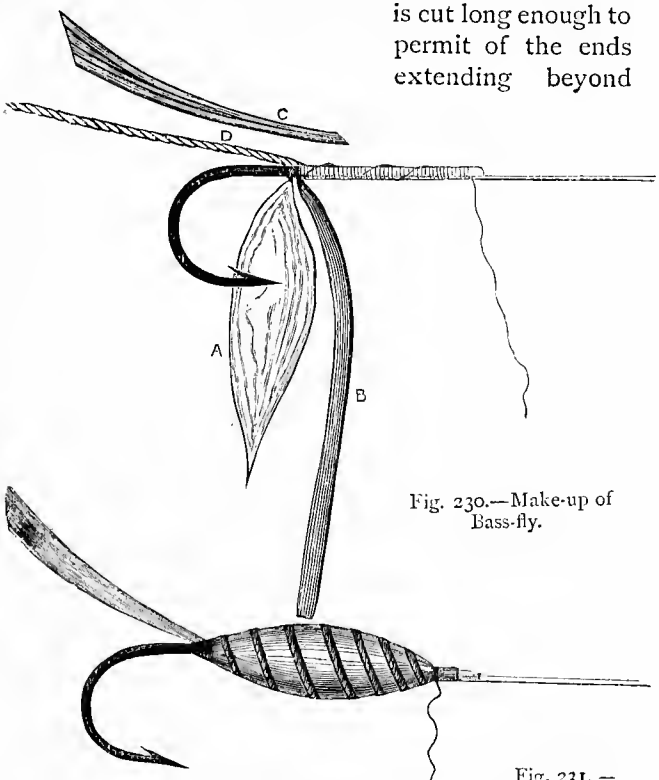


Fig. 230.—Make-up of Bass-fly.

Fig. 231. — Second Stage of Bass-fly.

the end of the shank, as shown at A. After taking two or three turns round the shank while they are in that position, and fastening the silk off to make it secure, the ends are then taken and reversed underneath, as shown in Fig.

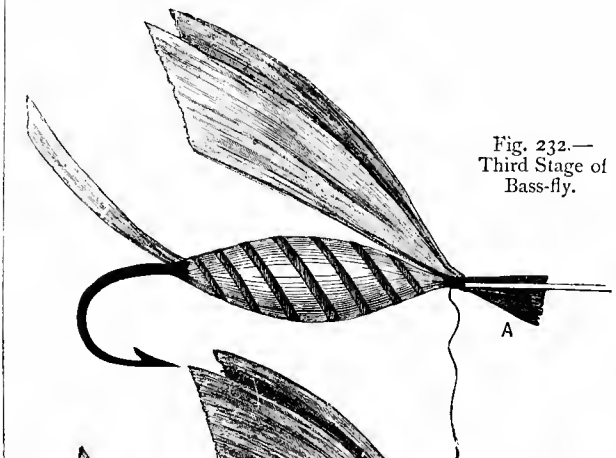


Fig. 232.—Third Stage of Bass-fly.

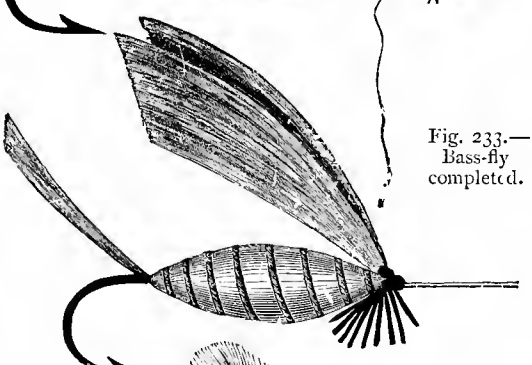


Fig. 233.—Bass-fly completed.

Fig. 234.—The "Queen" Bass-fly.

233, clipping off superfluous fibres but leaving enough to give a good idea of legs. This forms a very useful all-round trolling fly, and of course can be made of any size.

Fig. 234 is a more ornate arrangement, and I show it chiefly to indicate that it has, as it were, a double set of wings. I call it the "Queen."

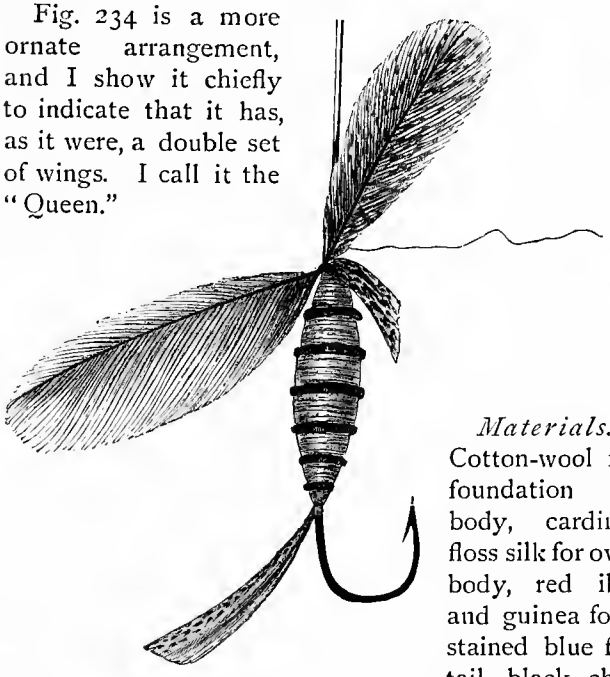


Fig. 235.—Make-up of "Queen" Bass-fly.

Materials.—Cotton-wool for foundation of body, cardinal floss silk for over body, red ibis and guinea fowl stained blue for tail, black chenille for body ribbing. Wings, single feather swan or under wing of mallard, white, or pearly white, two feathers from neck of guinea-fowl, *i.e.*, gallina hackle.

Now this fly is made in all respects similar to the last, with the exception of the wings. In Fig. 235 this difference receives explanation. It will there be seen that one single feather is attached directly over the upper side of the body, and there securely fastened.

The gallina hackle is not wound hacklewise, but a bunch of fibres from a good feather is tied at the throat of the fly. Then the two smaller feathers intended for the wings proper are attached, in the reverse way first, as I have before explained; and these are afterwards turned back and placed in their position as shown in Fig. 152, after which they are firmly secured. The *tout ensemble* is then that of a most handsome fly—butterfly rather than any other—for which insect I doubt not the Bass take it. The size of hook here shown looks large. It is intended to represent a Carlisle snecked bend; and these it is found are the best shape for most of the larger flies, though the sproat is by far the most approved pattern in America.

I have thus, in as succinct a manner as possible, laid the entire *rationale* of ordinary fly-making before the reader. If he perseveres, and does so with a determination to understand and profit by my instructions, he will satisfy himself *and the fish.* There is no royal road to fly-dressing, however. Practice unremitting, and study of the different forms of aquatic life, will tend greatly to perfect him. My own practice is, to take a butterfly net with me whenever I fish, and whenever I go near water; and half a dozen pill-boxes are not very bulky to carry for the purpose of bringing home my captures. These are duly preserved for the longer evenings of winter, when an ordinary magnifying-glass discloses their tints and shapes. Colour and shape are all-important in the artificial fly, and form must also be observed, but with certain reservations which may appear curious. Bainbridge, a most painstaking observer, says, on this head: "Although the imitation

of nature is the principal object to be desired by the fly-maker, yet in some instances it will be advisable to enlarge or diminish the size of the artificial fly. If the river be very high, the fly may be dressed larger than nature; if very low, the size may be reduced, and the body made thinner than the natural fly appears." With these parting hints, I close my instructions on this branch of fly-making, and pass on to that *chef-d'œuvre* of the tackle-maker's art—the salmon fly.

John J. Carton

CHAPTER XI.

SALMON FLIES: THEIR VARIETIES AND THE MODES OF MAKING THEM.

THE manufacturer of a salmon fly, as I have before hinted, has a vastly different task before him to that of making a trout fly. It is hard to say which is the most difficult, for in the case of the latter not only in many cases are the flies combinations requiring great ingenuity to form at all, but there is the additional necessity for a constant observance of the natural prototype. The salmon fly, on the other hand, resembles no living thing, either bird, beast, or fish, unless it be, in sooth, similar to the gorgeous humming birds of some far tropical forest. Even in that case the likeness must be accidental, for assuredly no lordly salmon sought for in British waters, even in its remotest travels, beheld the tiny gay plumed bird, for the simple reason that the fish is unknown in such southern latitudes. Nevertheless, it must not be supposed that there is no uniformity of pattern. Such flies as the "Shannon," "Silver Doctor," "Jock Scott," *et hoc genus,* are institutions, and each of the hundreds of these patterns that are dressed every year is true to its fellow; and, what is stranger, the fish will oftentimes take only such and such particular kinds of fly, though they take no natural fly, and rarely, indeed, feed at all in fresh water. The true difficulty in

salmon-fly dressing, therefore, consists in the selection and combination of colours, and, if you dye your own feathers, in the experimental knowledge of the processes this involves, with a ready appreciation of results. I saw some dyed feathers at the stand of Messrs. Little, of Fetter Lane, in the great Fisheries Exhibition, which were almost transparent when looked at between yourself and the light, showing beautiful tints of azure, vermilion, purple, and orange perfectly indescribable in words.

To plunge *in medias res* of the subject of salmon-fly tying, I cannot sufficiently praise the hooks of Mr. C. Court, of Redditch, samples of which I have just received with bayonet points. Of course, there are other hooks in the market of equally good temper, etc., but the idea of the three-angle point is good, and in the practical test which striking a salmon gives will come out first-class—of that I have no doubt. Whether the tyro uses them or not, his first consideration is the selection of a hook proportioned properly to the size of the intended fly. Of course, he must buy his pattern, and this first consideration will therefore be of no difficulty to speak of. As to other materials, it is obvious that feathers and fur, often of the most expensive kind, must now be sought for, both on account of texture and colour; though the clever dyer will save much to himself by the exercise of his knowledge. Supposing, however, that these preliminaries are got over, here are the simplest directions that can be given for the making of this poem of colour.

Having selected the hook, place it firmly in your fly-vice, with the end of the shank pointing to the right of you. Now take a stout round piece of gut

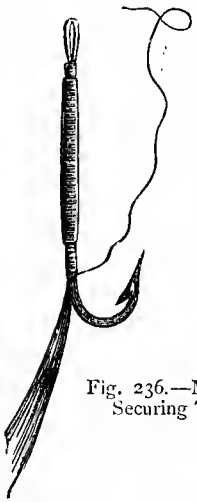


Fig. 236.—Mode of Securing Tail.

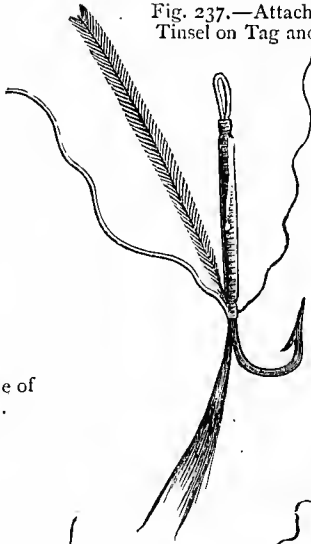


Fig. 237.—Attachment of Tinsel on Tag and Herl.

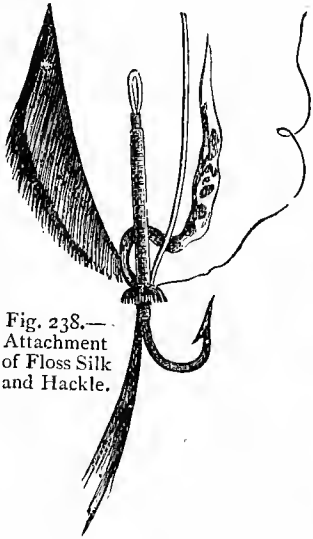


Fig. 238.—Attachment of Floss Silk and Hackle.

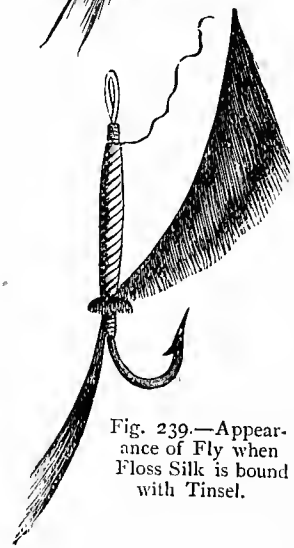


Fig. 239.—Appearance of Fly when Floss Silk is bound with Tinsel.

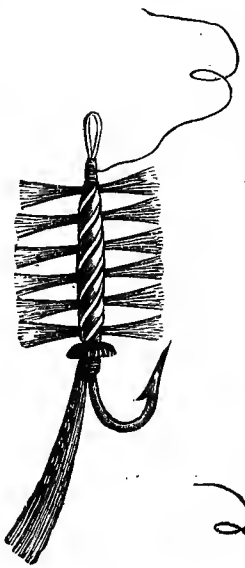


Fig. 240.—
Appearance after
putting on Hackle.

Fig. 241.—
Process of
Winging
Fly.

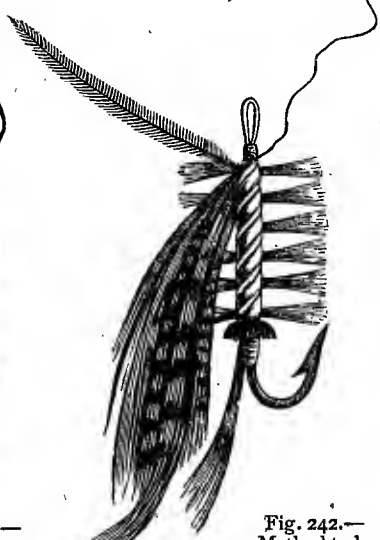


Fig. 242.—
Method to be
followed in
Forming Head.

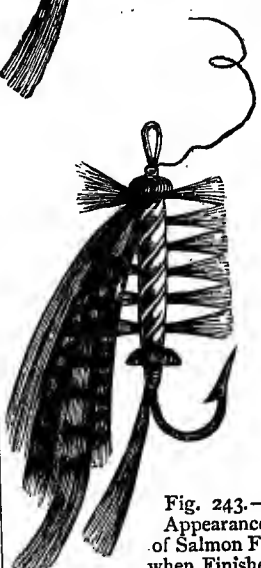


Fig. 243.—
Appearance
of Salmon Fly
when Finished.

and form it into a loop, crushing the two ends for a quarter of an inch between your teeth, that the whipping silk may take more hold on it. Now, leaving a space of an eighth of an inch at the end of the shank (for the head of the fly ultimately), proceed to whip the gut on the hook, waxing your silk duly with the white wax already spoken of. As the bend of the hook is neared, select a nice elastic feather for the tail and tie it on, securing it, as shown in Fig. 236, with two half-hitches. Snip off the end neatly. Occasionally the tail is of several colours, according to the kind of fly, and this adds to the attractiveness of the fly. Let them be selected, and so placed as to bend upwards, as shown. Next secure your tag or tinsel and your herl, which will be that of an ostrich. Fig. 237 shows this. Take your herl now, and wind it two or three times round, as shown in Fig. 238, fasten with a turn of the silk and two half-hitches. Now take a length of floss silk, if that is to form the body, and a hackle, and tie them on with a couple of turns of the silk just above the herl. Fig. 238 exhibits the result of this. Now lightly run your whipping silk up to the top of the shank, take the floss silk and twist that also up spirally, fasten with a hitch ; take the tinsel and similarly enclose the silk and fasten with a hitch ; and Fig. 239 shows the appearance of the fly now. The hackle must be treated in the same way, and fastened. Fig. 240 indicates this ; and now comes the process of winging, which, as in trout-fly making, requires *finesse* and neatness. A short space at the end of the shank, as we have seen, is left for the head and wings. Well wax your silk, and select your feathers so that they be of the silkiest. In a great many flies they are of various

colours. Adjust them as in Fig. 241, and lap them on with two or three turns, and fasten, being careful that the fastening is secure. Take a strip of peacock or ostrich herl now, and lap it on just above the wings (see Fig. 242) to form the head. Turn it round twice, as in Fig. 243, finish off with two laps and a cloven hitch, varnish with spirit varnish, and your salmon fly is finished. It will probably be a rough one; but you will have made one on the proper lines, and, with study, will never be at a loss to manufacture the most intricate.

The Shannon. This salmon fly is the largest fly made, and also one of the most killing on the river from which it derives its name, being chiefly used when the water is at flood. The illustration which forms the frontispiece to this volume shows it at its proper size. The dressing is as follows: Body, half light orange, half blue silk, to be ribbed with silk, tinsel, and gold twist, a lightish blue hackle is strapped over one side over body, blue jay under shoulder; head, seal's fur dyed yellow, tag orange silk above it, another tag of deeper orange hue; tail, large yellow topping; wings, ten or twelve large-sized yellow toppings, sprigs of the leading tail feathers of the golden pheasant, and four long feelers of the blue and yellow macaw. This fly may be dressed smaller if desired, and will then kill whether the river is at flood or not. The wings may be varied by the addition of large white hackle feathers dyed red, yellow, and blue.

The Goldfinch (Fig. 244).—Body, gold-coloured floss silk, tag black silk tipped with gold tinsel, ginger hackle and gold tinsel over body; blue jay at shoulder; kingfisher over butts of wings, which consist of eight golden pheasant's toppings of middling size;

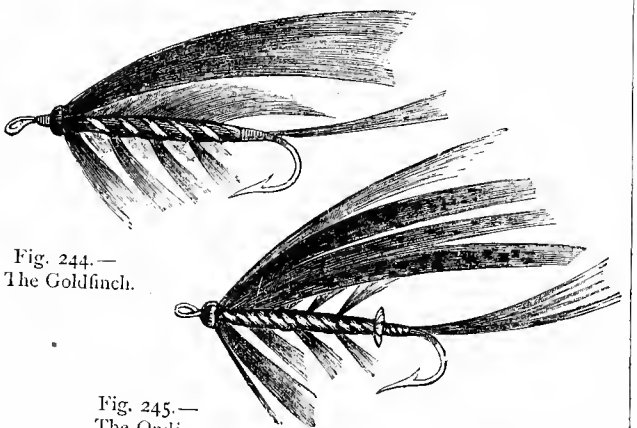


Fig. 244.—
The Goldfinch.

Fig. 245.—
The Ondine.

Fig. 246.—
Salmon Fly
for Deep
and Clear
Streams.

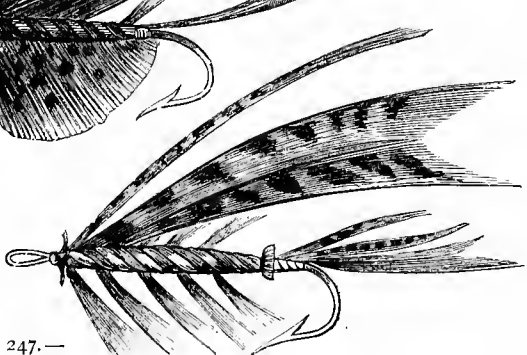


Fig. 247.—
The Parson.

legs, red macaw; head, black ostrich, golden pheasant topping.

The Ondine (Fig. 245).—Body, blue peacock, close ribbed with fine gold twist, two joints of green trojan feather and one of short red orange hackle under the shoulder, blue jay over the butt of the wings, small light blue tag; gold tip and brilliant little topping for tail; wings a careful mixture of fibres of bustard, silver pheasant, yellow and blue macaw, teal, guinea hen, and golden pheasant tail and neck feathers, surmounted by a topping; feelers, blue and yellow macaw; and bright blue silk head.

Salmon Fly for Deep, Clear Rivers (Fig. 246).—This is a capital fly, and will kill on deep and clear streams. It is thus made: Body, blue floss silk ribbed with silver twist, tapering orange tag, orange topping for tail, guinea hen hackle wound close to silver twist, thickening and lengthening up to shoulder, as shown; wings, a mixture of golden pheasant tail and neck feathers, guinea hen, and teal feathers; blue and yellow macaw for feelers or legs; and orange peacock herl for head.

The Parson (Fig. 247).—This is a very useful fly, and is thus dressed by Mr. Francis: Tag, silver tinsel and mauve floss; tail, two toppings, a few sprigs of lippel and kingfisher; body, two turns of golden floss silk, then golden wool merging into orange, twist silver orange hackle over wool, red orange hackle over that, and two or three more short toppings tied in at the breast instead of shoulder hackle, using a lippel feather with a cock of the rock on either side and one above, strips of pintail of wood duck on either side, as many toppings as you can pile on, seven or eight more, if you like.

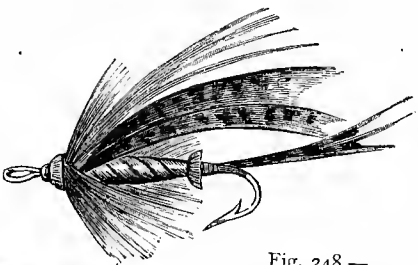


Fig. 249.—
The Dunkeld.

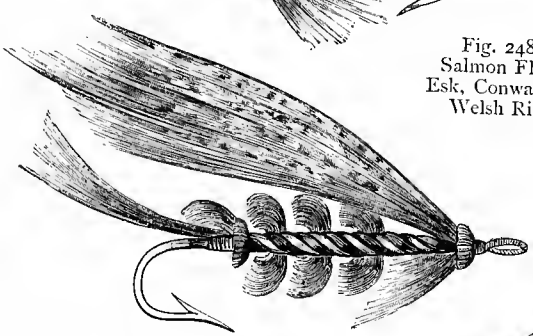


Fig. 248.—
Salmon Fly for
Esk, Conway, and
Welsh Rivers.

Fig. 251.—
The Toppy.

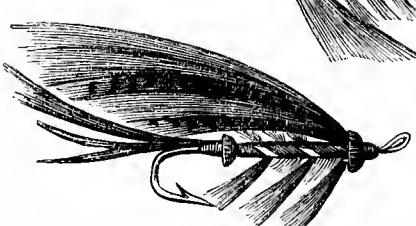


Fig. 250.—
The Blue Jay.

Salmon Fly for the Wye, etc.—Fig. 248 shows a neat, attractive fly on the Wye, Esk, Conway, and some of the salmon rivers of Wales. Body, dull mohair ribbed with gold tinsel and a long fibred hackle of the same colour wound over it; tag, a sable brown herl; tail, small toppings and sprigs of bustard and guinea hen feathers; wings, divided and unseparated slips from the bustard or peacock wing, or from a cinnamon brown and dark mottled turkey tail feather; feelers, blue and yellow macaw; head, bronze peacock herl.

The Dunkeld (Fig. 249).—This fly is thus made: Body of gold tinsel, rolled close and ribbed with silver twist and yellow hackle; the tag is of black ostrich tipped with gold tinsel; tail, of small topping and small jungle cock's feather; a little blue jay at shoulder; wings, two small toppings mixed with brown mallard and peacock's wing feather; blue, yellow, and red macaw feelers; and black ostrich herl for head.

The Blue Jay (Fig. 250).—This is dressed as follows: Body, light blue silk ribbed with gold tinsel, orange tag, and black ostrich; tail, small topping, mallard, silver pheasant tail, mottled turkey, and guinea fowl feathers; feelers, blue and yellow and red macaw; small black ostrich head.

The Toppy (Fig. 251).—"Ephemera" gives the following dressing: The wings are to be put on so that they project like blades of scissors slightly opened; body, black pig's wool or bullock's hair, slightly ribbed with golden or silver tinsel; tag, crimson silk or mohair; next to it, two turns of red hackle, black hackle up the body; tail, yellow mohair picked out; wings, black feather from turkey's tail, tipped with white; head, crimson mohair.

The Spey Dog.—I am indebted to Mr. Francis' "Book on Angling" for the representation of the Spey Dog (Fig. 252), as well as the dressing which he gives, as follows: Body, black pig's wool, up this is then wound some broad silver tinsel in widish rings, over the tinsel is laid on a large black feather (it cannot be called a hackle) with a lightish dun tip, taken from the side of a Scotch cock's tail—the feather is dressed the wrong way, so that the hackle

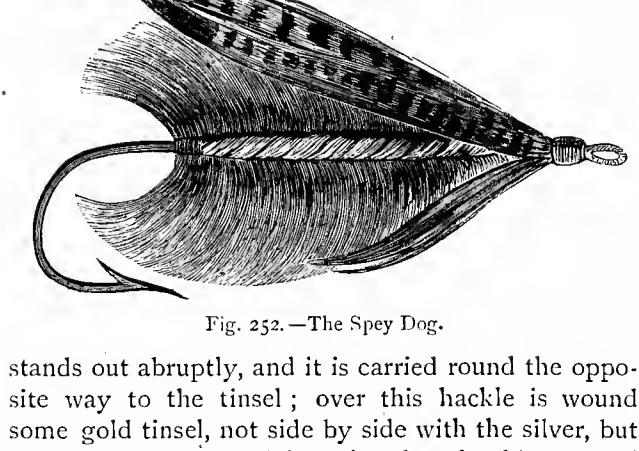


Fig. 252.—The Spey Dog.

stands out abruptly, and it is carried round the opposite way to the tinsel; over this hackle is wound some gold tinsel, not side by side with the silver, but quite independent of it. At the shoulder a teal hackle. Wing, a good wad of gold pheasant tail, with two long strips of grey mallard, with brownish points over it. The fly can be varied by using a brown hackle, and turkey instead of gold pheasant tail; add also orange silk between the tinsels.

The Oranmore.—Another fly of esteemed efficiency is the Oranmore (Fig. 253), and I again acknowledge

my indebtedness to that mighty fisher, Mr. Francis Francis, for the dressing. Tag, silver tinsel; tail, a topping and a small jungle cock feather; butt, black ostrich. Body, five joints of yellow and black floss alternately, divided by silver thread, and above that one thread of a red hackle stained light olive, manes of mohair from the back of each joint—the first darkish claret, second dark red, third darker claret, fourth darker red, fifth a mixture of yellow brown

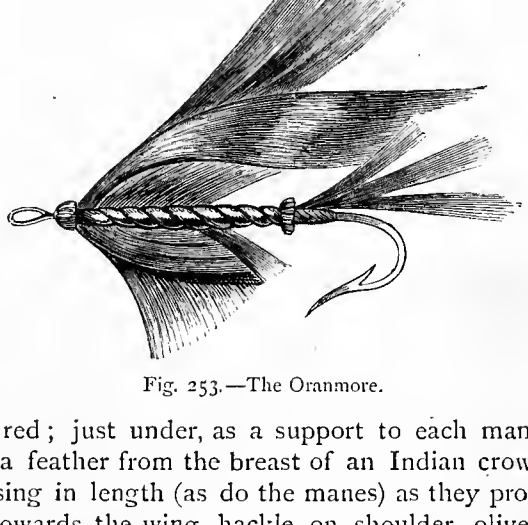


Fig. 253.—The Oranmore.

and red; just under, as a support to each mane, is tied a feather from the breast of an Indian crow, increasing in length (as do the manes) as they proceed up towards the wing, hackle on shoulder, olive red rump feather of gold pheasant tied in on the shoulder as a hackle, over that again a turn or two of blue jay; wing tippet fibres gold pheasant's tail and brown mallard, one topping; blue macaw ribs; black head.

With this fly I end my list, deeming it sufficient for

the purpose of giving the amateur an insight into the art of Salmon-fly making. Those who desire a longer and more elaborate catalogue would do well to consult Mr. F. Francis's "Book on Angling," and Ephemera's "Book of the Salmon," wherein all that pertains to the subject in full is set forth, including instructions as to the use of fly tackle generally. With these books and the present work, the angler's library need not be incomplete.

I have thus been privileged to explain the chief processes of fishing-tackle making, whereby the mechanician of the most ordinary calibre will be enabled to fabricate his tackle with sufficient skill to, at least, satisfy his quarry when he goes "a-fishing"—presuming, of course, that he intends not only to make tackle but to use it. And I would most earnestly advise all who have read and may read this work to take up the sport, if only for the greater enhancement of their execution in tackle manufacture. Such professional makers as Little, Farlow, Alfred Baily of Nottingham, Martin of Newark (the "Trent Otter"), are famous as well with the rod as at the fly-tying or rod-making bench; and it stands to reason that this should be the case. Who can properly decide on the balance of a rod, but he who can throw a fly or a spinning bait? Let me conclude with a hope that no one will look with disdain on this book because I have sometimes dwelt on the green fields and flowing streams of this our beautiful country as well as the workshop; for what the eloquent Dame Berners said, nearly four hundred years since, stands good now in reference to the angler: "The angler atte the leest hath hys holsome walk and mery at his ease, a swete ayre of the swete savoure of the

mede floures, that makyth him hungry, he hereth the melodyous armony of fowles, he seeth the yonge swannes, heerons, duckes, cootes, and many other fowles wyth there brodes, wyche me seemyth better than all the noyse of houndys, blastes of hornys, and the scrye of foulis that hunters, fawkeners, and fowlers can make. And if the angler take fysshe, surely thenne is no man merier than he is in his spyryte."

And Izaak Walton, the author of "The Compleat Angler," another volume which should be found among the books of every fisherman, was manifestly of the same opinion; for when he is seeking to show the superiority of fishing, as a field sport, over hunting, he declares: "No life, my honest scholar, no life so happy and so pleasant as the life of a well-governed angler; for when the lawyer is swallowed up with business, and the statesman is preventing or contriving plots, then we sit on cowslip banks, hear the birds sing, and possess ourselves in as much quietness as these silent, silver streams, which we now see glide so quietly by us. Indeed, my good scholar, we may say of angling as Dr. Boteler said of strawberries: 'Doubtless God could have made a better berry, but doubtless God never did;' and so, if I might be judge, God never did make a more calm, quiet, innocent recreation than angling."

I will call but one more witness into court to bear testimony to the pleasures of the fisherman, in the person of John Armstrong, physician and poet, who was pleased to give the following recommendation of angling in his "Art of Preserving Health:"

> "But if the breathless chase o'er hill and dale
> Exceed your strength, a sport of less fatigue,
> Not less delightful, the prolific stream

Affords. The crystal rivulet, that o'er
A stony channel rolls its rapid maze
Swarms with the silver fry: such through the bounds
Of pastoral Stafford runs the brawling Trent;
Such Eden, sprung from Cumbrian mountains; such
The Esk, o'erhung with woods; and such the stream
On whose Arcadian banks I first drew air;
Liddel, till now,—except in Doric lays,
Tuned to her murmurs by her love-sick swains,—
Unknown in song, though not a purer stream
Through meads more flowery, or more romantic groves,
Rolls towards the western main. Hail, sacred flood!
May still thy hospitable swains be blest
In rural innocence, thy mountains still
Team with the fleecy race, thy tuneful woods
For ever flourish, and thy vales look gay
With painted meadows and the golden grain;
Oft with thy blooming sons, when life was new,
Sportive and petulant, and charmed with toys,
In thy transparent eddies have I laved;
Oft traced with patient steps thy fairy banks,
With the well-imitated fly to hook
The eager trout, and with the slender line
And yielding rod solicit to the shore
The struggling panting prey, while vernal clouds
And tepid gales obscured the ruffled pool,
And from the deeps called forth the wanton swarms.
Formed on the Samian school, or those of Lud,
There are who think these pastimes scarce humane;
Yet in my mind,—and not relentless I,—
His life is pure that wears no fouler stains."

THE END.

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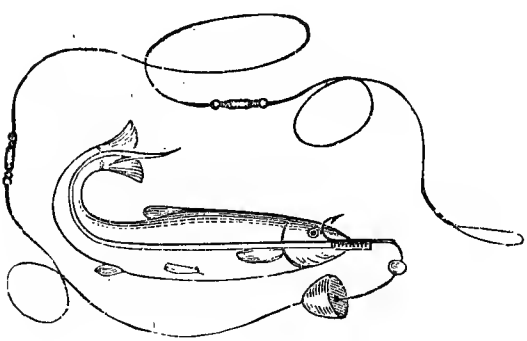

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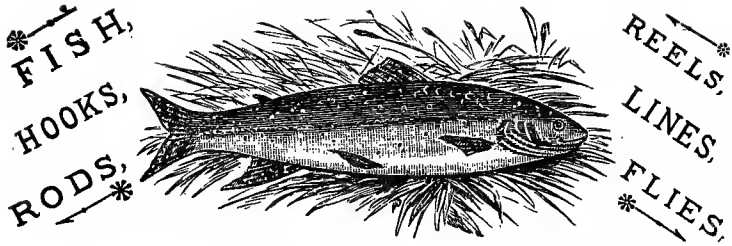

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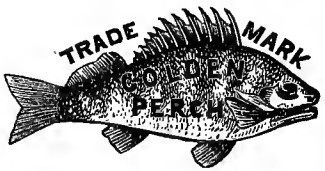

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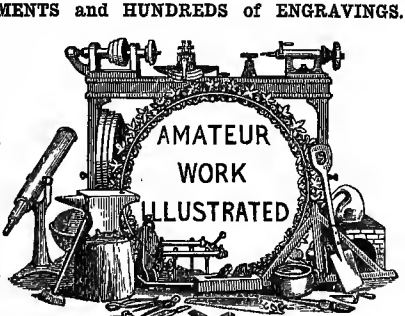

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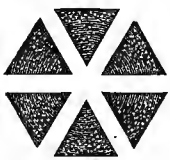

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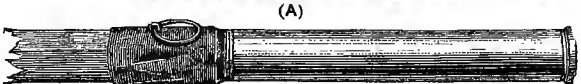

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